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DEPARTMENT OF THE INTERIOR,  
OFFICE OF INDIAN AFFAIRS.

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TEACHING THE RUDIMENTS OF COOKING  
IN THE CLASS ROOM.

PRIMARY METHODS AND OUTLINES  
FOR THE USE OF TEACHERS IN  
THE INDIAN SCHOOLS.

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WASHINGTON  
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DEPARTMENT OF THE INTERIOR,  
OFFICE OF SUPERINTENDENT OF INDIAN SCHOOLS,  
Washington, D. C., Aug. 15, 1906.

TO AGENTS AND SUPERINTENDENTS:

Your attention is directed to the importance of having elementary instruction in cooking made one of the essential features of the class-room work. The value of this instruction has become generally recognized, and the teaching of cooking now occupies a permanent place among the regular courses of many of the best schools in the country. The advantages to be derived from the general adoption of a similar course in the Indian schools are obvious, and the need of such training for Indian children is even more apparent than in the case of white children.

Indian girls should be fitted to take charge of homes of their own, and perform the necessary household work. Equipment for becoming good cooks and housekeepers is therefore an essential part of their education, and the foundation for this must be laid in the class room. There they should be given the rudimentary instruction that will enable them to profit by the actual working experience which they will obtain when detailed to assist in the school kitchen. Tactful teachers should be able to interest pupils in all the details of the earlier instruction, and if the preliminary work has been well done, they will not look upon the kitchen work as drudgery. To obtain the best results, earnest and sustained effort on the part of teachers is necessary, and they should be encouraged and urged to work energetically and effectively toward achieving the greatest possible success.

You will supply a copy of the accompanying sample lessons and suggestive outlines to each of your class-room teachers, and you will endeavor to arouse their interest in this matter and instruct them to take up the work as a part of their regular class-room exercises. It is intended that these outlines shall serve as guides and helps in preparing daily lessons, which should be adapted to the needs of individual classes.

The Office will appreciate your cooperation with its efforts to secure systematic and thorough class-room instruction in elementary cooking, and hopes that you will do all in your power to bring this work up to the highest standard attainable.

Very respectfully,

ESTELLE REEL,  
*Superintendent of Indian Schools.*

Approved:

FRANCIS E. LEUPP,  
*Commissioner.*



## TEACHING THE RUDIMENTS OF COOKING IN THE CLASS ROOM.

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### PREFACE.

Many of the best schools of the United States consider it advisable to have the theory of cooking taught in the class room, and it would seem equally important, or more so, for the teachers in the Indian school service to include this as an essential part of their work. For properly equipping Indian girls to become good cooks and housekeepers the foundation must be laid by the class-room teacher, whose instruction will include the experimental cooking necessary to illustrate fully the various processes, the actual cooking of meals being taken up by the domestic-science teacher or the school cook. If the pupils are well grounded in the rudiments and theory of cooking, they will not look upon the work as drudgery when detailed to the kitchen for practical training. They should become thoroughly familiar with the work to be performed and the necessity for it. In order to bring this about, the class-room teacher must begin the first year the child enters school. The instruction must be practical and designed to enable pupils to acquire correct methods in home making and an intelligent knowledge of the needs of the body. Each girl should, before leaving school, be fully equipped with the ability to prepare meals for a small family intelligently and economically, to take complete charge of the work of a small home, to keep accounts, and to plan meals that shall come within the limit of the family income.

The school cook, being occupied most of the day in preparing meals for the school table, has not time to instruct the girls in the theory of cooking and can give them only practical lessons. In schools having no domestic-science teacher it is important that the pupils be given sufficient elementary instruction in cooking by the class-room teacher to prepare them to receive practical training from the cook immediately upon being detailed to the kitchen. In these schools the superintendent should arrange to have the class-room teacher conduct classes in experimental cooking at least once a week. At schools where there is no stove in the class room one might be placed in the corner of the play or reception room. A small oil stove, which is inexpensive, would answer for the first two or three years for teaching pupils to

cook simple dishes. At one of the schools there seemed to be no available space for a cooking class; but the superintendent had a partition placed in one end of a large hall and used a discarded stove with which to make a beginning. At another school the superintendent had a stove and the necessary pieces of furniture placed in one end of a basement and later was able to secure an appropriation for a domestic-science room. Superintendents will be able to make some arrangements by which this work can be carried on, for "where there's a will there's a way."

In some counties of the State of Virginia the schools are provided with a cooking stove in one corner of the room, where the teacher instructs pupils in practical cooking, conducting at the same time other regular class-room recitations. In these schools classes in bread-making and in reading or other subjects are conducted simultaneously by the teacher, with the assistance of the older pupils in turn. A synopsis of the course in cooking used in some of these schools will be found in the appendix to this pamphlet.

The pupils should be advanced gradually each year, step by step. They should be made familiar with the names of the animals which supply the various kinds of meat, poultry, and game, and how these foods are prepared and served; also the names of the various vegetables, their growth and development, and learn something of their chemical composition and food value. These subjects form an important part of nature study and should be correlated with reading, writing, and language lessons. The necessity for cooking may be explained, showing that cooking makes food appetizing and more easily digested; that properly cooked food promotes physical, mental, and moral strength; that each kind of food has its practical function to perform in building up and sustaining the different parts of the body, and that a diet which includes vegetables is beneficial. Many of the Indian tribes need especially to be impressed with the necessity for a mixed vegetable and meat diet, as for generations they have subsisted almost wholly upon meat. The children must be taught that it is necessary to eat slowly and to masticate thoroughly all food. They must also be taught the importance of proper care of the teeth.

Butter making must be taught each year in the class room. Give the kindergarten pupils small quantities of milk with the cream on it. Teach them how to skim off the cream and make it into butter. The public schools of many of the large cities teach butter making in the class room to the smallest children. This feature of the work in Detroit is graphically shown in one of the illustrations in the annual report for 1904 of the board of education.

Man attains the best physical and mental growth only when possessed of a strong body and healthy mind. These conditions are fos-

tered by sanitary surroundings, nutritious diet, and healthful occupations. Upon the wholesome atmosphere of the home depends the welfare of the family. Home making is therefore a most honorable employment and worthy of the best effort. The formation of character as well as the acquisition of knowledge must be considered in outlining school work. Pupils must not be asked to consider isolated mathematical abstractions, but must be taught by practical experience, by measuring actual dimensions and definite quantities. The training in conscientious work, accurate measurements, and correct statements will emphasize the necessity for the truth. The cooking lessons are expected to advance pupils in knowledge and skill and power to meet the responsibilities of life; to cultivate a spirit of independence, and to develop and improve the native characteristics of the Indian. Love of home and children and hospitality to friends form leading traits of Indian character. Through these the teacher may appeal to the Indian child and find a sympathetic listener and a responsive learner. His interest will therefore be stimulated by training that has special bearing upon the home, because it follows the lines of his experience.

It is indicative of the child's healthy interest in the events of the life with which he is surrounded when he endeavors to reproduce them in play. Such plays should be suggestive to the teacher of methods of instruction and interesting occupations. The care of fowls and the raising and cooking of vegetables will arouse the child's spontaneous interest, as all children love animals and plants. The occupations each year in the class room should be varied and should typify some form of work in the home. The educational value of the lesson is lost when the class-room work is reduced to mere routine.

A number of sample lessons are given outlining the methods to be followed, and teachers are expected to add to and enlarge upon these, preparing many similar lessons to meet the needs of each class. Each sample lesson contains material for language, reading, and writing lessons for several weeks. When teachers have had marked success with any particular methods, the Office requests that they submit descriptive outlines of them, that they may be used for the assistance of teachers generally. A few recipes have been given in these lessons; for others needed, teachers may use any good cookbook that may be accessible.

## FIRST YEAR.

The class-room instruction in cooking the first year must be of the most elementary character and should have in view familiarizing the pupils with the names and uses of the various articles of dining-room and kitchen furniture, dishes, cutlery, cooking utensils, etc., and through this work teaching them to speak English. The lessons may be made attractive by having a miniature house in the schoolroom, the pupils making the furniture and utensils for the dining room and kitchen and cutting out of catalogues pictures of dishes, knives and forks, and furniture for use in the furnishing. The name and use of each article should be taught. For example, while making a table the word "table," and for what it is used, will be taught, and so on with each piece of furniture and each dish. To make a dish or a piece of furniture (using clay or paper) and learn its name will furnish material for at least two lessons.

Appropriate songs descriptive of the work will arouse interest and enliven the occupation. For example, when the milk is brought into the class room to be skimmed the song "Skim, skim, skim with the skimmer bright" will assist the pupils to a better understanding of what is done.

When teaching the names of fruits, vegetables, etc., take the class to the field or garden. First show the vegetable growing, having pupils note the parts—the leaves, stem, roots, fruit, etc.—then bring the vegetable into the class room and have them examine it carefully, noting its size, color, and shape, parts and use. Use this information in writing and reading and number lessons. These exercises should include weighing and measuring beans, peas, flour, sugar, milk, and other articles which are made the subjects of lessons.

## MAKING DISHES.

For this lesson the teacher should secure a number of cups from the dining room. Hold a cup before the class and give the word "cup" several times, pronouncing it slowly and distinctly; then require each child to repeat the word "cup" until all can pronounce the word distinctly and understand that it is the name of the article before them. Cups may be passed to the children, requiring each to say "cup" as it is received, and the class to repeat the word in concert several times. The teacher will make a sketch of the cup on the board and have each pupil copy it. The teacher should next make a clay model of a cup in

full view of the class. Every child should be given a piece of clay with which to mold a cup as the teacher has done, and as the cups are being made the teacher will pass from one to another, helping each and requiring every one to say "cup" repeatedly.

Teachers will need to exercise much patience and perseverance in conducting the lesson. Similar lessons must be given on each of the dishes made.

#### MAKING A TABLE.

Show the class a table in the class room and repeat the word "table" again and again, that pupils may connect the spoken word with the actual table before them. Let all pass around the table and have each one as he touches it say "table." Drill in repeating this word individually and in concert. The teacher will make a sketch of the table on the board and call on pupils to name it, pointing to the sketch and then to the table to discover if they will call both by the name "table." Have the children copy the sketch on their slates, and then under the direction of the teacher make the table, first of clay, then of paper or cardboard, and later of wood. While engaged in this occupation the teacher will use the word "table" as often as possible and give short sentences, as follows: "A table," "one table," "my table," "I make a table," "I have a table," "I make my table of wood," "I make my table of paper." The small tables completed by the pupils should be placed in the house. Devote two or more lessons to making each piece of furniture and give the work in detail, as in the lesson on making the table.

#### LAYING THE TABLE.

The teacher may secure a tablecloth, napkins, cups, saucers, and spoons from the school dining room. The names of the articles used in this lesson should be repeated frequently while setting the table. The teacher, holding the tablecloth, will name it and have each pupil pronounce its name; then let two children place it on the table carefully, the class repeating the name all together several times. As each child takes a saucer from the pile he must repeat the word "saucer" and place it on the table. Continue this method when placing the spoons, knives, forks, etc., on the table, bringing out many times the name of each article. In very simple language explain to the children why knives and forks are used. This lesson will have to be repeated frequently before the children will be able to pronounce the names of the various articles in daily use.

#### SERVING LUNCHEON.

Luncheon should be served to pupils at least once a week. Some simple articles of food may be secured from the school kitchen ready to serve; conversational lessons should be conducted at each meal, but

the name of one new dish only must be taught at one lesson. For example, at first the luncheon may consist of milk only, which may be served sometimes warm, at other times cold. For this the table need only be set with cups and saucers. At these lessons simple sentences may be brought out as follows: "I drink milk," "I drink warm milk," "I drink cold milk." Then bread and crackers may be added at other luncheons, and by these additions more dishes will be used and new words and sentences will be learned.

New dishes or articles of food must never be put on the table until those already given can be talked about. For the lesson when cereal is served the teacher should secure sugar and milk and a sufficient quantity of cooked oatmeal from the school kitchen. Two or three pupils may be appointed to set the table, the class observing their work and the teacher stating what they are to do—step by step—the pupils repeating in concert the directions given. For example, teacher says "We set the table, we lay the cloth." When the table is set the pupils march to their seats. The "grace" may be repeated in concert or sung when all are seated. The girl at the head of the table will serve the oatmeal, two girls being appointed to wait on the table. During each luncheon one new word must be learned by all. After finishing luncheon give class a few simple directions for clearing the table and washing the dishes. Instruct them in gathering up the cutlery, dishes, and napkins, removing crumbs and folding the tablecloth. Have a pan of hot suds in which to wash the dishes and one of clear hot water for rinsing them. Detail certain pupils to wash the dishes, others to dry them, and others to put them away. The tea towels and cloths must be washed and hung in the air to dry and the room left neat and clean. During all this work conversation should be indulged in freely and pupils encouraged to talk, the teacher prompting them by suitable questions.

Too much stress can not be laid upon the fact that one of the substantial features of an Indian girl's education is to fit her to become a good home maker, and that the foundation must be laid by the classroom teacher.

## SECOND YEAR.

The children should now be able to handle ingredients and cook simple articles of food, and the class-room teacher will be expected to lead them to consider the problems of the home and the essentials of life—air, water, and food. The class should be taken on field trips and shown the springs and water courses of the locality, the teacher explaining how streams are formed and fed, how water becomes contaminated, and the danger of drinking impure water. The importance of cleanliness of person and the home and its surroundings must be thoroughly impressed.

The doll house may be profitably employed again this year, the children making the dishes and furnishings. Acorn cups, clay, paper and wood may be used for this purpose. Some of the pupils may have toy dishes to contribute. The work should be more extensive this year than last. Small hammers may be used by pupils to nail the parts of the furniture together, and the assistance of the larger pupils secured for the difficult parts. Self-reliance should be fostered by giving the work into the hands of the children, the teacher criticising and making suggestions rather than leading, but urging pupils to carry out their own ideas as to the furnishings of the rooms. Reading, language, number, and writing lessons should be correlated with this work. The name of each new word that comes up should be written alone on the board, and included in simple sentences. By conversational lessons the work should be freely discussed as it progresses. Each child should be called on to give short sentences in explanation of his task, the teacher asking questions that will bring out the desired information. For example: "What shape is the table? For what do we use a cup?" When pupils are placing the furnishings in the doll house have them give sentences stating what they are doing and explaining the use of each article. Drawings of furniture and dishes should be made by all, on the board and on the slates.

The instruction this year should include laying the fire, cooking cereals, drying corn, stewing fruit, washing dishes, clearing the table, and putting everything away neatly. The importance of chewing the food well must again be taught, impressing upon pupils that this is necessary to insure good health.

Bring beans, peas, and other available material, also measuring cups and scales, into the class room and lead the children to discover simple-

number facts while making measurements. The halving and quartering of vegetables in preparing them for cooking will be useful aids later in teaching simple fractions.

#### LAYING THE FIRE.

This lesson should be outlined on the board and illustrated with a light sketch by the teacher who will then show pupils how to crumple the paper, having each child do this; she will next split some of the kindling very fine and some in larger pieces, showing class how and letting each do the work. The teacher now shows the class how to lay a fire, by laying an imaginary one on the desk, having each pupil lay a fire on his desk, explaining that after cleaning out the stove we first crumple the paper, placing on it the fine, then the coarser kindling, crossing the pieces to let in the air, and putting on the larger pieces of wood last. Each child must tell what he is doing as the lesson progresses. Of course much of the detail work may be omitted when the teacher finds that the children are already familiar with it. Many of the Indian children come to school with a knowledge of fire building, although their methods of building the fire at home will often be different from those they will find necessary at the school. The following outline is given as a sample. Pupils may not be able to give replies as fully as they are stated in this lesson, but by their performance of the work and their answers the teacher will know how well they understand the lesson and how much drill in review will be necessary. The teacher will lead them gradually, a few words at a time, to giving complete sentences in reply to questions.

#### SAMPLE LESSON.

**Note.**—The teacher should develop as many lessons along these lines as she finds necessary for pupils to understand the work.

- Q. When we wish to make a fire what is the first thing to do?
- A. We clean out the stove; we take out the ashes.
- Q. What must we do next?
- A. We must brush off the stove.
- Q. What shall we put into the stove first?
- A. We must put in paper, crumpling it.
- Q. What do we put on top of the paper?
- A. We put fine kindling wood on top of the paper.
- Q. How do we place the pieces of fine wood?
- A. We cross them, leaving a space between each piece.
- Q. Why do we leave a space between the pieces of wood?
- A. We leave a space between the pieces of wood to let in the air.
- Q. Why do we let in the air?
- A. We let in the air to make the fire burn.

Q. If we lay the pieces of kindling close together, so that the air can not get in, what will be the result?

A. The fire will not burn well.

Q. What do we next put into the stove?

A. We put large pieces of wood into the stove.

The teacher will show pupils how many pieces of kindling to use. Economy in fuel as well as economy in food must be taught. Explain that it is time to put on more wood or coal when the fire begins to burn well. When building the fire in the stove the teacher must show class how the stove should be cleaned out, then how to lay the fire, and next how to light the paper under the kindling; also explaining that the dampers are for regulating the air which passes through the stove into the pipe and out through the chimney, at the same time showing them which way to turn the dampers to open or close the draft. Show the children how to brush off the hearth and leave the stove clean and neat, explaining again just how and when to add fuel to the fire.

The teacher may write on the board the questions asked and the answers given, the pupils copying them on their slates.

#### FURNISHING THE HOUSE.

Making the furniture will involve much interesting work in drawing, measurements, preparing the wood, and sawing or cutting out the parts and putting them together.

#### SAMPLE LESSON.

Teacher showing pupils the furniture in the room, says: "We will make some furniture for the doll house. Can anyone tell me what we shall need to make furniture?"

A. We shall need wood to make furniture.

Q. Name the pieces of furniture we shall need for the dining room.

A. We shall need a large table, a small table, and some chairs.

Q. Name the parts of a chair.

A. A chair has a back, a seat, and legs.

The following and many other sentences may be brought out and written on the board for class to read and write: "The chair is made of wood," "the chair has four legs," "the chair has a seat and a back." Teacher and pupils will also draw sketches of each article of furniture to be made. Rulers must be used in these lessons, and drawings made to measurements, the exact size of the article to be constructed. Have pupils saw the boards the requisite lengths, after which the parts must be nailed together. A variety of sentences descriptive of the work should be given for drill in reading, number, and language work, and to make the lesson interesting. The following are suggestive of what may be brought out: I make a chair. I make a table. The chair and table are made of wood. The top of the

table is 4 inches wide and 8 inches long. The chair has four legs. The legs are 3 inches long.

Have pupils model dishes, knives and forks, and spoons of clay, or cut them out of paper or cardboard. While making a dish, the teacher encourages all to talk freely. The name of each dish must be given in a great many sentences, each child repeating these and giving others. For example: We make plates. We need plates for the table. I eat from a plate. I make one plate. I make two plates, etc. Continue these lessons and talks while making the other dishes and cooking utensils, giving pupils simple sentences, and using the new words many times until they are understood.

#### SETTING AND CLEARING THE TABLE.

Give careful instructions this year in setting the table and encourage pupils to advance ideas for this work, drawing out their home experience; also, their observation of the school work of the preceding year. Encourage good-natured rivalry in doing work well and expeditiously. Conduct the lesson in the same manner as the lesson on "laying the fire," asking pupils individually to describe each step of the work, and then writing their statements on the board for class to write and read, encouraging each one to offer suggestions and give some account of the work. When the meal is over and all have marched from the table, the teacher will appoint details of pupils to clear the table, wash the dishes, dry them, and put them away. Pupils assigned to these duties will do the work as prompted by the directions given in the replies of the remainder of the class to questions by the teacher, these questions being written on the board and read aloud and copied by the pupils.

#### SAMPLE LESSON.

NOTE.—Teachers should review, using as many of their own developed lessons as they find necessary.

- Q. What shall we put on the table?
- A. The silenee or felt cloth.
- Q. What next?
- A. The tablecloth.
- Q. What next?
- A. The salt, pepper, napkins, knives, forks, spoons, glasses, and dishes.
- Q. Where shall we place the cups and saucers?
- A. Before the girl that sits at one end of the table.
- Q. Where shall the plates be placed?
- A. We place the plates in a pile at the other end of the table, before the boy who serves the cereal, meat, or the principal dish served at the meal.

NOTE.—Just before sitting down to the meal the teacher must explain the importance of always putting the water on to heat for washing the dishes.

Q. After the meal has been served and eaten, what must next be done?

A. The table must be cleared.

Q. What shall those clearing the table do first?

A. They must put on aprons.

Q. Why must they put on aprons?

A. They must wear aprons to keep their clothes clean and dry.

Q. What caution must they observe in handling the dishes?

A. They must be careful not to break any.

Q. How must they work?

A. They must work rapidly, carefully, and neatly.

Q. What articles must they put away?

A. They must put away the sugar bowl, napkins, and all clean things on the table.

Q. How shall they take the crumbs up from the tablecloth?

A. They must carefully brush the crumbs off the tablecloth into a plate.

Q. Shall they take off the tablecloth?

A. They must take off the tablecloth, fold it carefully in the creases in which it was folded before, and put it away.

Q. While they are doing this, in what will others be engaged?

A. One girl will scrape all left-over food from the dishes.

Q. What will another be doing?

A. Another will be piling all dishes of a kind together and placing spoons, knives, and forks in separate piles.

Q. While these girls are so engaged, what will others be doing?

A. One will be putting the hot water in the pan, then making the suds to wash the dishes; another will be getting the mop and the towels ready, also the waiters on which the wet dishes will be set to drain.

NOTE.—Class must be instructed always to fill the kettle after pouring out the water in order to have hot water ready for any emergency.

Q. Which dishes must be washed first?

A. The cleanest—the glasses must be washed first.

Q. Which should be left for the last?

A. The most-soiled dishes should be left for the last.

Q. How should the dishes be wiped?

A. The dishes should be wiped very dry.

Q. As the dishes are wiped, those of a kind should be piled together.

What then must be done with them?

A. They must all be put away in good order.

Q. What care should be taken of the pans?

A. The pans must be emptied and wiped dry.

Q. What must be done with the tea towels?

A. Fresh water must be put into the pans and the tea towels washed.

Q. After washing the towels, where are they hung?

A. The towels are hung in the air to dry; the pans may then be hung up.

Q. Must the table be wiped off?

A. The table must be wiped off and the room left neat.

After the dishes have been put away, the room will require some attention and the following rules are in force for this work in one prominent school:

1. Fill kettle and get out cleaning material.
2. Wash and dry any dishes and cooking utensils remaining in the kitchen.
3. Wash off all tables, using sapolio on zinc-covered tables.
4. Wash, scald, and wipe sink, soap rack, and faucets.
5. Wash floor around sink.
6. Wash zinc under range.

## COOKING CEREALS.

Pupils may be given a simple recipe this year for cooking cereals. Exact measurements must always be required. Their judgment will be exercised and lessons in economy taught as they become familiar with the materials and utensils. The teacher will write the recipe on the board, as follows:

1 cup oatmeal. 3 cups water.  
½ teaspoon salt. Cook two hours.

NOTE.—The length of time for cooking and the proportional quantity of water varies slightly in different localities.

Each member of the class should be required to read the recipe aloud. The teacher will pass the oatmeal around the class, having each child measure one cup of oatmeal and go to the board and write just what he has done.

Q. What do we measure next?

A. We measure the salt.

The teacher will explain, pointing to the words, this says " $\frac{1}{2}$  teaspoon salt." The fraction  $\frac{1}{2}$  must be explained very fully, first having each child measure one teaspoon salt, then showing the class how to cut the spoonful in half, lengthwise, with a knife, to find one-half of the teaspoonful. Each child will then measure a half spoonful. Pupils must find one-half of bits of paper, cloth, apples, vegetables, etc. Anything at hand may be used until the fraction is understood. At many lessons the ingredients are not to be mixed, but only to be measured, so that exact measuring may be taught.

After thorough drill on this lesson and when the pupil can read the recipe from the board and follow it, making the measurements unaided,

the ingredients may be measured, mixed, and cooked, continuing the lessons until all have participated in the work. In review pupils may write compositions, stating how to do the work.

## SAMPLE LESSON.



NOTE.—Class will measure the oatmeal (any cereal may be used), salt, and water, and put them into a saucepan.

Q. Must we cover the saucepan?

A. We must cover the saucepan.

Q. On what part of the stove must we set the saucepan?

A. We must set it on a part of the stove which is not too hot, and where it will cook slowly.

Q. How long should oatmeal cook?

A. Oatmeal should cook two hours. (The time varies in different localities.)

Q. How much oatmeal is in this package? (Let pupils weigh it, showing them how to do so. Let them also measure it by cups.)

A. \_\_\_\_\_.

Q. These 4 cups, or 1 pound of oatmeal, cost 4 cents; what will 1 cupful cost?

A. \_\_\_\_\_.

Q. One cup of oatmeal when cooked will serve how many people?

A. One cup of oatmeal when cooked will make about 3 cups and serve three people.

Q. If 1 cup will serve three people, how many people will 2 cups serve? Three cups? Four cups?

A. \_\_\_\_\_.

A number of cereals may be cooked, including corn-meal mush and hominy, to give variety to the lessons and to teach new words. In giving any recipe the teacher must find the cost of the ingredients in the locality, accustoming pupils to find the cost of everything they use, the cost of the amount used, and the total cost of the dish prepared and the cost of enough to serve a stated number of people. Many similar mental problems may be evolved by both teacher and pupils.

## TOAST.

Teachers must prepare a number of lessons on toast making, giving pupils a general idea of the uses of stale bread and impressing upon them the necessity for economy, showing the importance of saving all bread crumbs and the many ways crumbs are useful in cooking. Thorough instruction must be given in making appetizing dishes out of left-over pieces of bread, using them in making dry, water and milk toast (sometimes sweetened by way of variety), cream (thickened milk) toast, and cheese toast (using thickened milk flavored with a little cheese). Stale bread may also be dipped in molasses and fried.

## STEWING FRUIT.

The following recipe for stewing prunes may be written on the board:

- 1 cup prunes.
- 2 cups water.
- 1 tablespoon sugar.

Wash the prunes thoroughly, then soak them in cold water two or more hours. Cook slowly until tender in the water in which they have been soaked. Then add 1 tablespoon sugar, cook five minutes longer, and set away to cool.

In carrying out the directions given in the recipe each child will measure the ingredients and write what he has done in a number of sentences on the board.

## SAMPLE LESSON.

Q. What is the price of prunes per pound?

A. Seven cents per pound.

Q. What does sugar cost per pound?

A. Sugar costs six cents per pound.

NOTE.—The prices vary, of course, in different localities, and the children should get current prices from the nearest store.

Q. How many cups of sugar in one pound?

A. There are two cups of sugar in one pound.

Q. How many tablespoons of sugar in one pound?

A. \_\_\_\_\_. (Let pupils measure.)

Q. We wish to stew some prunes. What shall we do first?

A. We must measure the prunes.

Q. What shall we do next?

A. We must wash the prunes, then put them in a saucepan with \_\_\_\_ cups of water, and let them soak for two hours.

Q. After the prunes have soaked for two hours what is done?

A. We put them on the stove to cook.

Q. Shall we drain off the water in which they have been soaking?

A. We must not drain off the water in which they have been soaking, but must put them on to cook in that water.

Q. Why?

A. Because it will retain the flavor to cook them in the water in which they have been soaking.

Q. How long must the prunes be cooked?

A. The prunes must be cooked until they can easily be pierced with a fork.

Q. When prunes are tender, or done, what must be added?

A. Sugar must be added and prunes cooked five minutes longer.

For further instruction, and to bring in new words and sentences teach stewing peaches, apples, and any other fruits that may be obtainable in the locality.

## DRYING CORN.

Drying corn will involve a series of interesting and practical lessons, directing the energy of the child along familiar lines. This will include a trip to the field, gathering the corn, bringing it home, husking and boiling it, cutting it off the cob, drying it and putting it away for winter use.

## SAMPLE LESSON.

Q. We wish to dry some corn for winter use; what shall we do first?  
 A. \_\_\_\_\_.

Teacher writes on the board: "We will go to the field. We will get some corn. We will bring the corn home. We will cut the corn off the cob. We will dry the corn."

TEACHER. All who can write the lesson may go to the field to get corn.

Upon returning from the field the teacher will have each child write a brief composition, telling what occurred on the field trip. After directing the class to husk the corn and take off the silk, the teacher may question pupils relative to the work.

Q. What do we need for cooking corn?  
 A. \_\_\_\_\_.

Q. How long should corn be cooked?

A. The corn should be boiled about ten minutes. (This varies somewhat according to locality.)

NOTE.—The teacher can indicate to the class on the face of the clock the space over which the hands must travel for ten minutes to elapse.

Pupils may be supplied with plates upon which to lay the corn while cutting off the kernels, and also with knives. The teacher will show each one how to cut the corn off close to the cob, so as not to waste any. After the corn has been cut it should be placed upon clean cloths, boards, or waiters and set on a high place in the open air to dry, preferably in the sun, bringing it in at night and setting it out every clear day until it is thoroughly dry. It must then be put away in boxes or jars for winter use.

This work will present opportunities for conversation, and pupils must be led to express themselves correctly and to think independently, the teaching of English being a foremost thought.

### THIRD YEAR.

Instruction this year must include, by way of review, reading simple recipes, measuring ingredients accurately, care of dishes and table, cooking fruits and cereals; and for new work making tea, cocoa, and coffee, and cooking peas, potatoes, string beans, and eggs. It must also include making small books containing recipes and directions for cooking. These books should be kept and recipes added to them in succeeding years. The teacher will call upon the pupils to describe dishes they enjoyed at home during vacation, and to state, as nearly as possible, how they can be prepared, writing these statements in their cookbooks. This should be continued through succeeding years, and will form a valuable collection of recipes of Indian cookery. Through the daily routine of school experience pupils have by this year acquired a limited knowledge of the duties of a well-regulated home and the use and value of food, and the reasons for careful cooking must now be explained. It is not intended to outline an elaborate course of cooking in these lessons, but only to give instruction that shall be fundamental.

Measuring cups, scales, the churn, and other implements should form an important part of the equipment of the class room. Weighing and measuring and computing the cost of light meals for a given number of people will furnish interesting and practical work. The cost of each ingredient must be reckoned, as well as the totals. It will be excellent practice for the pupils if the teacher will conduct a store, selling at current prices everything used in the cooking lessons. Conducting a store in the schoolroom is successfully carried out on the Pine Ridge Reservation. The pupils must actually handle and weigh out the quantity of each article required, using toy money in payment. If, for example, apples, cereal, and milk are to be served for luncheon, the teacher will find out how much each will cost and what will be the cost of the meal served to the number of pupils present. The store transactions thus become real and the problems involved being within the knowledge and daily experience of the pupils readily arouse their interest and incite a healthy rivalry in solving them. This year the importance of chewing food thoroughly must be kept before the pupils, explaining that the first process of digestion takes place in the mouth, where by careful mastication the food is mixed with the saliva, which is nature's method of preparing the food to enter the stomach, where further digestion takes place, and that only digested food builds

up and nourishes a strong healthy body. Teach also the care of the teeth, and that it is injurious to crack nuts with them or to use them for breaking other hard substances.

The teacher should endeavor to incite in the minds of the pupils a desire to excel in home-making duties. Self-reliance must be stimulated and mental power developed. Training must be given in clearly expressing thought, both orally and in writing and by drawings. The application of these lessons to life's usefulness must be clearly set before the minds of the children, leading them to realize the benefits to be derived from the ability to make home more attractive. The teacher must keep in mind that one aim of this training is to impress upon the child that as he will in the future be compelled to rely upon himself he must fit himself to do so successfully. Beginning this year and continuing in subsequent years, pupils should be encouraged to plan ahead for the future and to give serious thought to the question of what they are to do for a living upon leaving school.

#### MEASURING INGREDIENTS.

The instruction must again include measuring ingredients accurately. Drill first on measuring a level spoonful, using a knife to smooth it off, then on rounding and heaping spoonfuls. Next show how to divide the contents into equal parts, first by cutting lengthwise to divide into two parts and then crosswise to divide into four parts. Illustrate also the use of measuring cups. Explain that the average cup holds half a pint and prove this by pouring exactly half a pint of water into an ordinary coffee cup. Pupils may not have graduated measures at home and should be given some standard of measurement upon which they may depend. Coffee or tin cups are usually found in their homes, and these may be used as standard measuring cups. Give each member of the class drill in making measurements until all can make them accurately and rapidly.

#### MAKING INDIVIDUAL COOKBOOKS.

A small cookbook must be made by pupils each year in the school-room. A few sheets of paper sewed together will answer. A durable cover should be made on which the title of the book and the name of the owner may be written. Recipes should always be written first on the board in the simplest language, using the fewest words possible to express the meaning. Those that have been successfully used should be given to each pupil written on slips of paper. When pupils can read and write a recipe, give a clear explanation as to carrying it out and measure the ingredients accurately, it may be copied in the individual cookbooks. Let class examine a cookbook before making the individual cookbooks.

## SAMPLE LESSON.

Q. How many would like to make a cookbook?

A. \_\_\_\_\_.

Q. What must we do first?

A. \_\_\_\_\_.

NOTE.—Teacher explains that the books are to be made of paper cut in sheets a given size.

Q. After we have cut the paper, how shall we fasten the sheets together?

A. We must sew the sheets together.

The teacher will give out paper, ruler, and scissors and write on the board the dimensions of the sheet to be cut. Pupils must measure paper the required size, then cut it. Needles and thread will then be distributed, teacher showing class how to sew the sheets together.

Q. Shall we make covers for the cookbooks?

A. \_\_\_\_\_.

Q. What shall we write on each cover?

A. We will write the word "cookbook" on the cover; also the name of the owner.

Q. What is written inside the book?

A. \_\_\_\_\_.

NOTE.—After securing replies from the pupils the teacher will direct them in writing the matter which is deemed important and which they must remember in order to be successful cooks.

## MAKING TEA AND COCOA.

The teacher must explain in language sufficiently simple for pupils to understand that tea aids in the assimilation of food, that when properly made it is refreshing, especially to the sick, but that it should not be used as a beverage daily and, for children, should never be made stronger than the accompanying recipe. Teacher must further show that tea contains tannic acid, a poison which may retard digestion if the tea is too strong; that it is not best to make tea in a tin teapot, as it is liable to poison the system, and that the vessel or pot should be of porcelain or granite. The following recipe may be written on the board.

To make tea: One teaspoon tea, one pint boiling water. This will make two cups of tea.

Scald the teapot, put in the tea, add the boiling water, let steep (not boil) for *five* minutes, serve with sugar when desired.

## SAMPLE LESSON.

Q. What shall we use to make tea?

A. \_\_\_\_\_.

NOTE.—The children will, as called upon, read the recipe, and as each ingredient is named it will be written on the board by the class individually.

Q. For how much tea does the recipe call?

A. The recipe calls for one teaspoon tea. (All questions and replies must be written and read by pupils in turn.)

Q. For how much water?

A. The recipe calls for one pint water.

Q. Why do we first scald the teapot?

A. We scald the teapot to make it clean and hot.

Q. What do we then put into the teapot?

A. We put tea in the teapot.

Q. What is next put into the teapot?

A. We pour the boiling water over the tea.

Q. Do we cover the teapot?

A. We cover the teapot and let the tea steep.

Q. Do we let the tea boil?

A. The tea must never boil.

Q. Why must tea never boil?

A. Boiling tea spoils its flavor.

Q. How long must the tea steep?

A. The tea must steep five minutes.

Q. What is the best time to drink tea?

A. We should drink tea after eating, not during the meal.

Q. If one teaspoon tea will serve two people, how much is required for four people? For six people? For eight people? For all in this room?

A. \_\_\_\_\_.

Q. If one pint of water is used for one teaspoon tea, how many pints do you use for two teaspoons tea? How many quarts? How many pints for three teaspoons tea? How many for four teaspoons tea? How many quarts? How much water to serve those in this room?

A. \_\_\_\_\_.

Have pupils measure the amount of tea called for in the recipe, then the quantity of water.

A similar lesson should be given on making cocoa, using the following recipe:

Two teaspoons sugar, two teaspoons cocoa, one cup milk, one cup water. Put milk and water on fire to scald. Mix sugar and coeoia thoroughly with a little cold water, in a separate vessel, add them to the scalded milk and water, boil five minutes and serve. (This will serve two persons.)

#### COFFEE.

Coffee making must be taught, but it should be explained to the class that it is injurious to health to drink strong coffee. It may be brought out in explanation that while coffee drinking is very generally practiced it is not altogether a good habit, and coffee is often

injurious especially to children. Coffee made by the following recipe will be found comparatively harmless:

One tablespoon coffee, one quart boiling water. Stir well and boil ten minutes. Put in a dash of cold water to settle it and serve.

#### BOILING POTATOES.

Give each pupil a potato, directing attention to its shape. Each child should be required to make some statement relative to the peculiarity of his particular potato.

**NOTE.**—Class will observe the spots on the potato, and the teacher will explain that these spots are called eyes, that these eyes are really little buds, and that under the right conditions of soil and moisture they will grow.

Q. How many see the eyes?

A. \_\_\_\_\_.

Q. How many eyes has your potato? (Require individual answers.)

A. \_\_\_\_\_.

Q. Are the ends of your potato alike?

A. \_\_\_\_\_.

Q. In what do they differ?

A. \_\_\_\_\_.

**NOTE.**—The hollow place where the stem was attached is called the stem end of the potato, the other is called the eye end. The teacher will have each pupil hold the potato by placing the stem end up, with the eye and eyebrows in the same relative position as their own eyes and eyebrows.

Q. Which end is on top?

A. \_\_\_\_\_.

Q. Is the potato hard or soft?

A. \_\_\_\_\_.

Q. Would you think the potato juicy inside?

A. \_\_\_\_\_.

Q. Has the potato a skin?

A. \_\_\_\_\_.

Q. Is the skin thick or thin?

A. \_\_\_\_\_.

Q. Where does the potato grow?

A. \_\_\_\_\_.

Q. Does the potato contain starch?

A. \_\_\_\_\_.

Q. How can you tell?

A. \_\_\_\_\_.

**Experiment.**—Cut a very thin slice off a potato, dip the slice into a glass of water and squeeze it until the water becomes milky. Let the water stand overnight and you will see some white, fine powder in the bottom of the glass. This powder is starch.

**TEACHER.** The starch is the food stored away by the mother plant in the much-swollen parts of the root, which we call the potato. This starch makes the plant grow faster and better. We will plant potatoes in the garden in the spring and watch them grow. (They may also be grown in window boxes and used as object lessons.)

Q. How many like potatoes?

A. \_\_\_\_\_.

Q. What must we do with them before they are ready to be eaten?

A. We must cook them.

Q. We will first boil some potatoes with their jackets on. What do we mean by the jackets?

A. \_\_\_\_\_.

The teacher will write the following recipe on the board before cooking the potatoes:

Wash the potatoes very clean, then cover with boiling water, boil twenty minutes, or until they can be pierced easily with a fork, remove from the stove, drain and serve with salt.

Call on the class to name other ways potatoes may be cooked. Full directions for the cooking may be given by the teacher.

#### COOKING PEAS.

Let each child have a pea pod before him.

Q. What color is the pea pod?

A. \_\_\_\_\_.

Q. How many see small leaves and a stem on the pea pod?

A. \_\_\_\_\_.

Q. Do we eat the pea pod?

A. \_\_\_\_\_.

Q. Where do we find the peas?

A. Inside the pods. (Let all open the pods with a pin on the curved side.)

Q. What do we see?

A. \_\_\_\_\_.

Q. How many peas?

A. \_\_\_\_\_.

*Experiment.*—Soak seed peas over night in warm water; next morning plant them in damp sand or sawdust; keep moist, and in about a week the little plants will appear.

Q. What happens when we plant the dried peas?

A. \_\_\_\_\_.

Q. Is the pea plant a bush or a vine?

A. \_\_\_\_\_.

Q. If the vine grows tall what shall we do to support it?

A. \_\_\_\_\_.

Q. After peas have grown and become vines, they blossom; what color is the blossom?

A. \_\_\_\_\_.

Explain that when the blossoms fall off, the pea pods appear, at first very small, gradually growing larger and larger, and finally are matured and ready to gather.

Q. After the peas have been picked what happens to the vine?

A. \_\_\_\_\_.

Have class make drawing of the pea pod before and after it is torn apart, showing how the peas are placed.

Peas are cooked by boiling. They also make very good soup.

To boil peas: While shelling peas have the water on the stove in a saucepan to boil. Put peas in a saucepan, allowing one gill of peas for each person, add teaspoonful of salt to every quart of peas, and cover with boiling water. Boil twenty minutes; then drain off water, season with butter, and serve.

#### STRING BEANS BOILED.

String the beans, soak in cold water, drain and put in freshly-boiled salted water; cover the kettle to preserve the color of the beans, boil twenty minutes, or until a fork can easily pierce them, drain, and season to taste.

NOTE.—When these recipes have been learned, other ways of cooking these vegetables should be taught this year.

#### EGGS.

Eggs may be easily cooked by very small children. Explain that it is well to test eggs by holding one between the eye and the sun or bright light, and if clear it is fresh; also, that eggs should be kept in a dry, cool place and should be washed before using. Eggs may be preserved by packing them, small end down, in lime, sawdust, or sand to exclude the air. In the talks before the class the teacher must also explain that eggs are among the few perfect foods, since they contain all the constituents required by the body. The following recipes for soft-boiled and poached eggs and for omelets may be given:

#### SOFT-BOILED EGGS.

Place the eggs in boiling water and let boil for three minutes; or place the eggs in boiling water, remove from the stove, cover, and let stand for ten minutes, then serve. In high altitudes it will be necessary to boil eggs a little longer, as the boiling point of water is lower and less heat is developed.

#### POACHED EGGS.

Have ready a shallow pan containing enough boiling water to cover the eggs. Break each egg into a saucer, then slip it carefully into the water, cook until the white is firm and a film forms over the yolk.

Pour water over the yolk to aid in cooking. Remove eggs carefully from the water with a skimmer and place on slices of toast; add salt and pepper, and serve.

PLAIN OMELET.

Beat the yolks of two eggs until light; add two tablespoons milk, one-half teaspoon salt, and a dash of pepper. Beat the whites until stiff and dry; quickly and lightly cut and fold them into the yolks until just covered. Butter the sides and bottom of a hot pan; turn in the mixture, and spread evenly. Cook slowly until well puffed up and a delicate brown underneath; place the pan on the grate in the oven to cook the top. Then run the knife under, fold it over, and turn onto a hot platter.

To make a fancy omelet, spread chopped ham and parsley or jelly, grated cheese, etc., over the plain omelet before folding.

#### FOURTH YEAR.

The work this year should impress upon pupils the value of pure water and good air. It includes variety in cooking, assimilation of food and the hygiene of the house. Give careful instruction in the use of soda and sour milk, also of baking powder in making biscuits, muffins, and batter cakes. Continue the instruction in cooking meats and vegetables in a variety of ways, in butter making and care of milk, in outlining simple menus for breakfast, dinner, and supper, and in self-reliance and habits of neatness and economy. Emphasize the fact that well-cooked food has more to do with the health of the family than the doctor.

The teacher will give class, in review, sufficient drill in measuring actual quantities, weighing material, and computing the cost of dishes prepared to enable pupils to work efficiently.

NOTE.—The teacher should borrow scales and measures if the classroom is not equipped with them.

In order to give a better understanding of the importance of considering the cost of everything cooked, the teacher will accustom pupils to plan and prepare menus and meals for a given number of people at stated prices. For example, let them provide a luncheon for six people for 25 cents, a dinner for three people for 30 cents, a breakfast for four people for 25 cents. The value of a garden as a means of furnishing a variety of vegetables and thus providing a better meal for the amount expended than where everything has to be purchased should be shown. These are questions that will arise as soon as the pupils go to their homes, and it is for this that they must be instructed and prepared.

Compositions must be written by the pupils, stating the necessary appointments and furnishings of dining room and kitchen, giving detailed accounts concerning the care of each room, and how the kitchen may also be used as a dining room. Have class make a list of the articles they would purchase, giving the cost of each, if they were going to spend a certain amount—\$10, \$20, \$30, etc.—in furnishing their kitchen or dining room. The manner in which this is done will enable the teacher to discover how much the pupils have learned relative to kitchen and dining room needs, and what additional instruction is necessary.

During the preceding years pupils have had some experience in making fires, setting the table, washing dishes, cooking simple articles

of food, and this year should perform this work in a neat, thorough, and acceptable manner. Each month a little more responsibility should be placed on the children. All effort should be encouraged, and criticism given only in a spirit of helpfulness. Before attempting any task, class should be questioned relative to the work in hand, the ingredients and utensils to be used, and the time required for accomplishing a given amount of work. The lesson of learning to perform an allotted task in a given time is an important one. The cooking lessons will furnish excellent material for expression in conversation, reading, and writing, and the cultivation of the judgment.

#### PREPARING MENUS.

In the preliminary talks, explanation must be made that breakfast should be a nutritious meal, consisting of meat, or eggs, cereals, bread, butter, and some warm beverage; that dinner, the substantial meal of the day, should include meat, vegetables and bread, while luncheon or tea should be a light meal, for which is served some warm beverage, bread, cereal, fruit, etc. Find out pupil's views on the subject of appropriate dishes for the different meals. Point out where their ideas may be improved or modified and give simple menus showing what constitutes an average for morning, noon, and evening meals. Give brief talks on the nutrient value of the various articles of food, and their uses in building tissue and supplying energy. The following is taken from Circular No. 46, Office of Experiment Stations, U. S. Department of Agriculture, and will be of assistance to teachers in this connection.

#### USE OF NUTRIENTS.

Food is used in the body to build and repair tissue and to furnish energy. The manner in which the valuable constituents are utilized in the body may be expressed in tabular form, as follows:

Protein.....	Forms tissue (muscles, tendon, and probably fat).	All serve as FUEL and yield ENERGY in form of heat and muscular strength
White (albumen) of eggs, curd (casein) of milk, lean meat, gluten of wheat, etc.		
Fats.....	Form fatty tissue.	
Fat of meat, butter, olive oil, oils of corn and wheat, etc.		
Carbohydrates.....	Transformed into fat.	
Mineral matters (ash).....	Aid in forming bone, assist in digestion, etc.	

NOTE.—Teachers will adapt instruction based on above table to meet the requirements of individual classes.

Pupils will gain confidence in their ability to plan for meals by practice, observation, and by suggestions from the teacher. In these lessons the advantage of serving warm dishes at each meal and their value to health must be brought out. Explain that the firmness of the flesh and the hardness of the bones depend on the food, and peo-

ple can work longer and better for having nourishing meals. The following is an average daily menu in an Indian school.

*Breakfast*.—Cereal; eggs, or meat stew (made of meat left from dinner); biscuits; coffee or milk.

*Dinner*.—Meat; potatoes; onions; bread; soup or dessert.

*Supper*.—Hominy, oatmeal, or rice, boiled with prunes; bread; tea or milk.

When luncheon is served in the schoolroom, talk it over with the class, but let pupils plan the meal.

SAMPLE LESSON.

Q. How many meals should we eat each day?  
 A. We should eat three meals a day to have good health.

Q. What do we call the morning meal?  
 A. We call the morning meal breakfast.

Q. What meal do we eat at noon?  
 A. We eat dinner at noon.

Q. Give the name of the evening meal.  
 A. The evening meal is called supper, or tea.

Q. What is eaten for breakfast?  
 A. Fruit is good to eat for breakfast.

Q. What else?  
 A. Cereals, meat, bread, griddle cakes, milk, etc.

Q. What kind of cereals do you like?  
 A. \_\_\_\_\_.

Q. Name the different kinds of fruit you like.  
 A. \_\_\_\_\_.

Continue this lesson, questioning the pupils regarding the articles of food suitable for each meal.

WEIGHTS AND MEASURES.

The class-room teacher must give thorough drill in the use of weights and liquid and dry measures. Pupils must learn this year to read recipes from cookbooks, measure the ingredients accurately, and write compositions, saying in what order these ingredients should be combined. This can be accomplished by giving practice in reading recipes and measuring ingredients. Water may be used for practice in measuring liquids, and flour or bran in measuring dry materials. This work must be done by pupils individually. Interest may be secured by questioning the children regarding the details of the work in which they have been engaged in the school kitchen.

The following table of equivalents and list of abbreviations should be kept by the pupils in their individual cookbooks.

*Equivalents.*

60 drops.....	1 teaspoon.
3 level teaspoons.....	1 tablespoon.
16 tablespoons.....	1 cup.
2 tablespoons butter.....	1 ounce.
2 tablespoons sugar.....	1 ounce.
2 tablespoons liquid.....	1 ounce.
3 tablespoons baking powder.....	1 ounce.
4 tablespoons flour.....	1 ounce.
2 cups granulated sugar.....	1 pound.
2 cups butter or fat.....	1 pound.
2 cups chopped meat.....	1 pound.
4 cups sifted flour.....	1 pound.
4½ cups coffee.....	1 pound.

*Abbreviations.*

tbsp.....	tablespoon.
tsp.....	teaspoon.
c.....	cup.
g.....	gill.
qt.....	quart.
oz.....	ounce.
min.....	minute.
h.....	hour.

**DIGESTION.**

Specific instruction must be given showing the functions of the organs of the body in conducting food through the system; how digestion takes place, and how the body is built up and nourished by food. Class should be able to reply to questions similar to the following:

**SAMPLE LESSON.**

Explain that just as food is prepared in the kitchen for the table so food is prepared in the mouth for the stomach.

- Q. Why do we chew our food?
- A. We chew our food in order to prepare it to enter the stomach.
- Q. Why must the saliva be thoroughly mixed with the food?
- A. This is nature's first process of digestion.
- Q. Why must we eat slowly?
- A. We must eat slowly that we may thoroughly masticate our food.
- Q. If we eat rapidly and do not chew the food well, what may be the result?
- A. The stomach would have difficulty in digesting the food and feel uncomfortable.
- Q. Why would the stomach feel uncomfortable?
- A. Because it would have too much work to do.

Q. The teeth have neglected to do their duty and have given the stomach extra work; what does this teach?

A. This teaches that every part of the body should do its own work.

Q. What part of the body performs the first work in digestion?

A. The teeth do the first work in chewing the food.

Q. What care should be taken of the teeth?

A. The teeth should be brushed at least once a day to keep them sound and clean, and after each meal when convenient.

Q. Why must we not break hard things with the teeth?

A. Hard things must not be broken with the teeth because they may crack the teeth.

Q. If the teeth are cracked or broken, what will result?

A. Broken teeth are liable to decay and ache, making it necessary to pull them out.

Q. Should all the teeth be pulled out, what would be the result?

A. Our health would not be good, for we would have no way of chewing our food.

Q. What is digestion?

A. Digestion is the preparation of the food for absorption into the blood.

Q. What becomes of the food taken into the mouth?

A. Food taken into the mouth goes into the stomach.

Q. When food has been mixed with gastric juice and worked all over by the stomach, where does it go?

A. Food goes from the stomach into the intestines.

Q. From the intestines it is taken up by the blood; where does the blood carry it?

A. The blood carries it to the heart, and the heart sends it through the body to make bone, muscle, skin, brain, etc.

#### BISCUITS, BATTER CAKES, ETC.

This lesson may be introduced by questioning the class regarding the manner of making bread at home. Among those tribes that grind their meal and flour the story of this process will be interesting. The primitive manner of grinding grain between stones, mixing the flour with water and baking on hot stones or before the fire will form a practical beginning and will lead up to the flour of commerce which is purchased at the mills or stores and from which our bread is made. From the accounts given by the pupils of bread making in the Indian homes lead them to an understanding of the cookery in the school. The importance of wholesome bread, which must be light and porous and easily permeated by the digestive fluids, must be shown. Lessons on the use of soda and baking powder will teach the part performed by these agents in making good bread, biscuits, rolls, pastry, and cakes.

Give reliable recipes for making batter cakes of cornmeal, also of

flour, and for muffins and biscuits, explaining the importance of learning how to make different kinds of bread, to give variety to the menu. Require pupils to learn these recipes and give them opportunities to use each in class several times during the year.<sup>a</sup> The class must be questioned to test their understanding of the instruction given, explaining the parts not clear, and pupils should be able to reply to questions similar to those in the following sample lesson:

SAMPLE LESSON.

Q. From what grains may flour be made?

A. Flour may be made from wheat, rye, corn, buckwheat, rice, and barley.

Q. What grains are raised in largest quantities in the United States?

A. Corn, oats, and wheat are raised in larger quantities in the United States than any other grains.

Q. In what climate does wheat grow?

A. Wheat will grow in all countries having a moderate temperature.

Q. Name two kinds of wheat.

A. Winter wheat and spring wheat.

Q. When is winter wheat sown?

A. Winter wheat is sown in the fall.

Q. When is spring wheat sown and where does it grow?

A. Spring wheat is sown in the spring and grows in the north.

Q. What are the characteristics of flour made from winter wheat?

A. Flour made from winter wheat is soft and starchy and is desirable for making cake or pastry.

Q. Describe the flour made from spring wheat.

A. Spring wheat is hard and yields a flour rich in gluten. It is creamy in color and cakes slightly when squeezed in the hand.

Q. What nourishment does wheat contain?

A. Wheat contains all food elements necessary for the growth of the body:

Q. What is the best flour for household use?

A. Flour made from a blend of winter and spring wheat is considered best for general use.

Q. Since flour and water mixed and cooked would be indigestible, what must be done to lighten the mixture?

A. The mixture must be lightened by using yeast, baking powder, or soda and sour milk.

NOTE.—Explain how baking powder is made and how its gases lighten the dough.

Experiment No. 1: Mix soda and water. What is the result?

<sup>a</sup> NOTE.—Class-room teachers who must use the heating stoves may take the class to the kitchen once or twice a week and direct the work there.

**Experiment No. 2: Mix soda and sour milk. What is the result?**

NOTE.—From this we see that the addition of moisture to a mixture of alkali and an acid will produce a gas, causing it to foam. This added to the mixture of flour and water lightens it, and we say the mixture rises. We further see that acids and alkalis are opposite in their nature.

**Experiment No. 3: Put one-fourth teaspoon soda and one-half teaspoon cream of tartar into a glass; mix and pour hot water over it. What do you observe?**

**Experiment No. 4: Put one teaspoon baking powder into a glass and pour hot water over it.**

**Experiment No. 5: Pour cold water over one teaspoon baking powder.**

Which causes the more rapid escape of gas, the cold or the hot water? (Applies to Nos. 4 and 5.)

Q. What is a batter?

A. A batter is meal or flour mixed with water or milk.

Q. What is a drop batter?

A. A drop batter is made by mixing flour and water thick enough to drop from a spoon when pouring.

Q. How must a drop batter be made?

A. To make a drop batter, mix two measures of flour to one of liquid.

Q. How is a pour batter made?

A. A pour batter is made by mixing equal parts of flour and water.

Q. How may batters be lightened?

A. Batters may be lightened by the addition of sour milk and soda, by using baking powder, or cream of tartar and soda, and by beating air into them.

Q. Give a good and inexpensive recipe for batter cakes.

A. Good batter cakes may be made by using one cup of sour milk, one-fourth teaspoon soda, and flour to make the right consistency.

Q. How shall these ingredients be mixed?

A. Mix the soda with the sour milk, add the flour, stir briskly, and bake.

Q. What is dough?

A. A dough is a stiff mixture of flour, liquid, and other articles.

Q. How is a soft dough made?

A. A soft dough is made by using one measure of liquid to three measures of flour.

Q. How do you make a stiff dough?

A. To make a stiff dough, use one measure of liquid to four measures of flour.

Q. When baking powder is used, should the dough be handled much?

A. Baking-powder mixtures should be handled as little as possible, and cooked, as soon as mixed, in a hot oven.

Q. Give a good recipe for baking-powder biscuits.

A. Two cups flour, 4 level teaspoons baking powder, one-half teaspoon salt, 2 tablespoons shortening, and about three-fourths of a cup of water.

Q. Give the order of mixing these ingredients.

A. Sift and mix the dry ingredients, chop in the shortening with a knife until the mixture is like fine meal. Add half the water, then the rest more gradually, mixing with a knife. When smooth, turn the dough out on a floured board, toss until coated with flour, pat or roll about one-half inch thick, cut with a biscuit cutter, place close together in a baking pan, and bake in a hot oven twelve or fifteen minutes.

NOTE.—For additional experience in handling flour, and for variety, give instruction in making cakes.

Q. When we wish to make molasses cookies, what shall we need?

A. One-half cup lard, one-half cup sugar, one-half cup water, 1 cup molasses, 1 tsp. ginger, 1 tsp. cinnamon, 1 tsp. soda, and flour.

Q. How shall these be mixed?

A. Cream the lard, sugar, and molasses. Sift in the ginger and cinnamon, add the soda dissolved in water, and sift in enough flour to make a soft dough. Roll one-half inch thick, cut out, and bake in a hot oven.

Q. What kind of flour must be used in making these cookies?

A. Either whole wheat or white flour may be used.

Q. Give directions for making good sugar cookies.

A. Use 2 eggs, 1 cup sugar, one-half cup butter beaten to a cream, 4 tbsp. sweet milk, 2 tps. baking powder, and enough sifted flour to stir stiff with a spoon. Flavor with lemon or vanilla. Flour molding board, roll thin, cut, and bake in a quick oven.

NOTE.—The teacher should give the following rules for working before class is allowed to begin.

1. Collect all materials that will be needed.
2. Measure dry ingredients first, then liquids.
3. Measure all ingredients before beginning, then combine mixtures.
4. Never use a tin spoon to mix any acid; use only wooden spoons.
5. Clear up as you work, keeping dishes piled up for washing.
6. Learn to work neatly, quietly, and quickly.

Teachers should plan as many lessons as time will permit. The instruction should be comprehensive and give explicit directions and sufficient drill to enable pupils to explain the facts learned, both orally and in writing.

#### MEATS.

The class must be made familiar with the animals and birds whose flesh is edible, and the value of meat in enriching the blood and giving general strength. A drawing of the animal or bird studied each day

should be made on the board for the class to copy in the individual cookbooks, together with the notes on its use as food. Pupils will enjoy this, as the Indian child draws birds and animals especially well. This drawing should be properly diagramed, designating the different parts or cuts, the teacher explaining their relative nutritive values and the various ways in which they may be prepared for the table. Pupils must learn the importance of a mixed diet, which will include vegetables, to supply the system with acids and purify the blood from eruptive tendencies. They must be taught something of the relative digestibility of meats—that mutton is most easily digested, beef next, etc. They must also be taught how to corn or pickle meats, dry beef, make sausage, and cure the meat of swine. Encourage pupils to describe the methods their parents use in preserving beef, veal, etc. Explain fully the danger in eating pork when not well cooked. Teach how to cook meats to retain or to extract the juices, how to cook tough as well as tender cuts, making wholesome and palatable dishes, and the value of soup as an economical food. If fish are obtainable in the locality, their food value should be explained and a variety of ways of cooking them taught. Pupils must learn how to select fresh fish and meat.

The following sample lesson will serve as a hint to the teacher in preparing questions to bring out methods of cooking different kinds of meats, and economical recipes should be given. The importance of eating with regularity to supply fuel for the body when working must be emphasized. Three nourishing meals should be eaten daily. The practice of eating between meals is to be avoided, since it is not wise to have undigested food constantly in the stomach. Late suppers should not be eaten, nor should anyone go to work on an empty stomach. Attention to these details will insure better health.

SAMPLE LESSON.

- Q. What is meat?
- A. Meat is the flesh of animals used for food.
- Q. What is game?
- A. Game is the flesh of wild animals and birds used for food.
- Q. What is the most nutritious meat?
- A. Beef is considered the most nutritious meat.
- Q. What is the structure of meat?
- A. Muscle, tissue, fat, bone, tendon, juice, and skin.
- Q. Why is meat cooked?
- A. Meat is cooked (*a*) to improve the appearance; (*b*) to improve the flavor; (*c*) to kill the germs; (*d*) to soften the fiber.
- Q. What methods of cooking meat will extract the juice?
- A. Making soups, broths, and teas.
- Q. Give a recipe for making beef soup. Beef tea.
- A. \_\_\_\_\_.

Q. How should meat be cooked to retain the juices?

A. To retain the juices, meat may be boiled, roasted, broiled, or fried.

Q. How do you roast a piece of beef; how fry, and how broil a steak? How do you boil meat to retain the juices?

A. \_\_\_\_\_.

Q. Name the cuts of beef?

A. (1) Loin: Best for roasts and steaks. (2) Rump(tough): Pot roast and steak. (3) Round: Fair steak, beef tea, beef loaf. (4) Top sirloin: Fair steak and pot roast. (5) Prime ribs (six ribs): Fine roast; blade (three ribs), fair roast. (6) Neck: Stew and soup. 7. Brisket: Corned and boiled. (8) Flank: Steak, boiled and stew. (9) Shoulder: Soup.

These cuts should be taught by showing the cuts on the animal diagrammed on the board, then by actual observation in the butcher shop.

NOTE.—A quarter of beef might be brought into the class room. (This was done at Chilocco.)

Q. Name the cuts of pork?

A. \_\_\_\_\_.

Q. What cuts of beef are used for soup?

A. \_\_\_\_\_.

Q. From what part of the beef are roasts obtained?

A. \_\_\_\_\_.

Q. From what part of the beef do we get the best steaks?

A. \_\_\_\_\_.

Q. Of what use is the neck? The tail? The head, etc.?

A. \_\_\_\_\_.

Q. How do tough cuts of meat compare in price with tender cuts?

A. Tough cuts are not so expensive.

Q. Can tough cuts of meat be cooked sufficiently to render them digestible and palatable?

A. They can.

Q. Have tough cuts of meat as high a food value as tender cuts?

A. Tough cuts of meat when carefully cooked have a higher food value than tender cuts.

Q. What is the proper way to cook tough cuts of meat to soften and dissolve the connecting tissue?

A. The best way to cook tough cuts of meat is to stew, boil, or braise them.

Q. What is meant by boiling meat?

A. To boil meat it is put into boiling water, cooked at this temperature about fifteen minutes, then allowed to simmer until tender.

Q. How is meat cooked by braising?

A. Braising is cooking meat in the oven in a tightly covered pan with a small amount of water.

Q. What cuts of meat may be cooked by braising?

A. Cuts of meat not tender enough for roasting but of a better quality than those used for stews may be cooked this way.

Q. Describe two ways of making gravy after broiling beefsteak; two ways after roasting a piece of beef.

A. \_\_\_\_\_.

Q. What cuts of meat are broiled; what are roasted?

A. \_\_\_\_\_.

Q. Should both bone and fat meat be used for stews?

A. Bone makes the stew gelatinous and fat gives the desired richness.

NOTE.—Careful instruction must be given in making stews, hashes, croquettes, and gravies.

Q. What kind of food is soup?

A. Soup is a stimulative and economical food; it can be easily assimilated, and may be made from materials and remnants of food which can not be used otherwise.

Q. Explain how soup may be economically made?

A. After a meal any piece of meat that can not be used again for cold or what are called made dishes should be put into a "catch all" and saved for soup; also all the bones, gristle, trimmings, fat, etc., especially the platter gravy.

Q. From what else may soups be made?

A. Soups may be made from meats, fish, or vegetables with water or milk and seasoned or flavored with sweet herbs, spices, catsup, sauces, and some kinds of fruit.

Q. How should stock be made?

A. To make stock, cut the meat into small pieces and soak in cold water before heating to extract the nourishment. Cold water draws out and dissolves the meat juices; hot water hardens the albumen on the outside of the meat and prevents the juices from escaping into the liquid.

Q. Give further directions relative to cooking soup?

A. Allow one pound of meat to each quart of soft water. Success depends largely upon cooking slowly that the juices may be retained in the water and not wasted by evaporation and upon skimming. The kettle must be kept covered while cooking.

Q. How should vegetables be prepared for soup?

A. Vegetables must be washed, pared, and cut into small pieces. Tomatoes should be scalded, peeled, and sliced. Onions fried give a richer color and a different flavor than when used raw. Vegetables should be put into soup  $1\frac{1}{2}$  hours before soup is done, excepting pota-

toes, which require half an hour to cook. Rice must be picked over, washed, and drained.

NOTE.—The length of time required for cooking vegetable soups varies in different altitudes and also depends upon the size vegetables are cut.

#### LYE.

With a hammer and nail make a few holes in the bottom of a tomato can near the center. Cover the holes with a muslin cloth. Fill the can nearly full of hardwood ashes and place over a glass jar, so that when the water is poured on the ashes the lye leachings are caught in the glass jar. This lye should not be put in a tin or metal pail or dish. Use about one teaspoonful of lye to a quart of hard water and notice the result when a soiled piece of cloth is washed with this and soap. With soft water less lye should be used than with hard water. A little lye is useful in washing coarse heavy clothes that are greasy or much soiled.

#### SOAP WITHOUT BOILING.

Use 4 pints of water to one box of lye.

Dissolve lye in a pot of cold water, putting in amount of water at first for number of boxes to be made up. The lye will dissolve in a few moments and the water will then be hot. Melt and strain the grease (only drippings can be used); then, while the grease is warm, in a third vessel put first one pint of grease and then one of lye and stir constantly with a stick until all is added—having equal parts by measure—one person pouring while another stirs. Five pounds of grease when cold will make four cups when melted. It is better to weigh the grease when cold.

NOTE.—Fat scraps of all kinds should be carefully saved. The fat can be "tried out" and utilized in soap making.

Other economical recipes may be given this year.

#### FIFTH YEAR AND UPWARD.

The fifth-year course will include general information respecting foods, utensils, and fuels; waiting on the table; continuing cookbooks kept in preceding years; invalid cookery; domestic hygiene, and the importance of system and economy.

Show by chart, and by inspecting the animal, the parts of meat used for boiling pieces, roasts, etc., and explain that all parts of the animal are put to some use. Continue instruction in cooking vegetables and meats, and bread making. Give talks on materials from which cooking utensils are made and test pupils' understanding of the subject by having them write compositions. The teacher must bear in mind the pupils' home surroundings, financial circumstances, and the conditions to be faced on leaving school, and must endeavor to lead them to think independently. Frequent practice in preparing meals for a small family of four or five persons must be given until each pupil shall be able to plan, cook, and serve breakfasts, dinners, and suppers, suited to each season; to prepare the best meals at the smallest cost, and to utilize food remaining from meals, preparing it in a different way to make appetizing meals for the following day.

The pupil must be trained to make the most economic expenditures and to compute the cost of living for the family at home on daily wages of \$1 and upward, this work providing practical arithmetic lessons. At least 10 per cent of the income should be saved and put into bank, and the remainder used to defray the family expenses, including food and clothing. A sum should be set aside for each item of household expense, and the expenses kept within the figures fixed. The thrifty housekeeper will then consider how this income may be increased by raising vegetables, poultry, swine, etc., to supply the family table and have some products left over to sell. Special attention must be given to instruction concerning the sanitary conditions in and about the house, the use of disinfectants, and proper ventilation. The economical and successful cook gives careful attention to details. Class-room teachers can not drill too much on sanitation and cleanliness, and should question their pupils frequently on all matters of this kind; but although many circulars have been sent to the field on this subject a number of teachers apparently fail to realize its importance. It is suggested that each teacher keep the following posted in a prominent place on the blackboard: Before beginning work, pupils will note the temperature and the amount of fresh air in the room.

Theory and practice in cooking should be closely interwoven, and through all instruction the spirit of the school should foster an appreciation of the universal law of natural consequences as applied to conduct, and an ambition for usefulness in the community.

#### BREAD MAKING.

Good bread is an essential in every home. Housekeepers should know how to make good yeast and bread, and the class-room teacher must teach the theory, methods of procedure, and recipes so thoroughly that the girls will understand the directions given, and, with practice in the kitchen, have no difficulty in becoming successful bread makers.

The following recipe is taught in the schools of one of the largest cities in the country, and has been found satisfactory.

##### *Quick process.*

½ cup hot water.  
 ½ cup scalded milk.  
 ¼ tsp. salt.  
 2 tsps. sugar.  
 1 tsp. shortening.  
 ½ yeast cake dissolved in ¼ cup lukewarm water.  
 About 3 cups bread flour.

Put salt, sugar, and shortening into a large bowl; pour on hot liquid. When the mixture is lukewarm, add the dissolved yeast. Stir in flour to make a batter, beat well, then add more flour, a little at a time, to make a stiff dough, mixing with a knife. Turn it upon a floured board, knead until it is smooth, elastic, and does not stick to the board. Put it into a greased bowl, cover closely and let it stand in a warm place (about 75° F.) until double in bulk. This will take between two and three hours. Knead again until fine-grained, shape into a loaf and place in a warm greased pan. Cover and put in a warm place. When double in bulk, bake in a hot oven. Bake a loaf fifty to sixty minutes.

Give the recipe and directions to the class as a dictation exercise; then have them read, also written from memory, as a language lesson. The lesson in bread making is given at length to show how the subject may be made interesting, and that it is full of possibilities for the teacher to work out.

#### SAMPLE LESSON NO. 1.

Q. How do we get the flour in general use?

A. —————. (Teacher will show class the growing wheat and, when ripe, let class thrash it out, examining the heads of wheat, also the grains.)

Q. How many coatings has a grain of wheat?

A. A grain of wheat has four coatings:

a. The outside, which is hard, is called bran.

b. The next contains gluten.

c. The third consists of fat and germ.

d. The fourth or center is starch.

Q. What part of the wheat is used in making flour?

A. \_\_\_\_\_ (Teacher will explain the process of milling flour, and, where practicable, take pupils to a mill and show them how the flour is milled, by cleaning, grinding, and bolting.)

Q. What are the food properties of wheat?

A. \_\_\_\_\_ (Teacher will explain that wheat contains starch, which makes fat; phosphorus, which makes bone, and gluten, which builds up flesh, nerves, and muscles. Bread made from wheat is therefore one of the perfect foods, because it contains all food stuffs necessary for the growth of the body.)

Q. What ingredients are used in making bread?

A. Flour, water, lard, salt, yeast, and sugar.

SAMPLE LESSON NO. 2.

Q. What is yeast?

A. Yeast is a plant. It is the simplest form of vegetable life, being only a small cell which can not be seen without a very strong microscope.

Q. How does yeast grow?

A. Yeast plants grow by budding off from each other.

Q. How is yeast killed?

A. Yeast, like all plants, is killed by extreme heat, and its growth is retarded by extreme cold.

Q. At what temperature will yeast grow best?

A. Yeast will grow quickest and best at a temperature of between 72° and 90° F.

NOTE.—Explain that yeast changes some of the starch into a kind of sugar, and the sugar into dioxide gas and alcohol. The gas rises in its efforts to escape and puffs up the elastic, glutinous mass two or three times its original size. When the expansion has reached the desired limit the fermentation is checked by kneading and baking. Some of the starch is changed into gum or dextrin and forms the crust. The alcohol escapes in the oven.

Q. Why is yeast used in making bread?

A. Yeast is used in making bread because the flour and water are lightened by it and rendered more digestible.

Q. How many kinds of yeast are used in bread making?

A. Dry yeast and liquid yeast are used in bread making. Compressed yeast is also used but is not made at home.

Q. How is dry yeast made?

A. To one handful of hops add 1 quart of water, boil ten minutes, and strain off the water. Scald 1 pint of flour and mix with this liquor. When this is almost cold, stir in one-half cup yeast, let stand until it ferments, then stir in sufficient corn meal to make a stiff dough. Roll out and cut into small cakes to dry. (Fort Apache Indian School, Arizona.)

Q. How is liquid yeast made when using potatoes?

A. Grate fine 6 good sized potatoes; over these pour 1 pint boiling hop water (not too strong or it will make the bread dark). Add one-half cup salt, 1 cup sugar. Stir well and when cool add 1 cup yeast. Let it rise, cork tight, and keep in a cool place. Make a hop water by steeping one-half cup loose hops in 1 quart of boiling water in a granite kettle five minutes.

NOTE.—Explain to class that potatoes must be peeled and grated as rapidly as possible to prevent their turning dark. Pour on the boiling water and cook half an hour; add salt and sugar shortly before they are done; when sufficiently cool put in any good yeast to raise it. Stir well together. The next day it will be as light as foam, and 1 teacupful will be enough to raise four or five loaves. Keep in a cool place, and in summer renew every two weeks. Teacher may use the yeast and bread recipes that she has found successful or those that have brought the best results in the locality.

Q. Should some of the yeast last made be kept for use in making the next yeast?

A. Never use up all the yeast on hand, but save at least a cupful to put into the new yeast.

Q. State how to make bread, using a sponge.

A. To make four loaves of bread, soak one-half cup dry yeast in one-half cup warm water. To 1 cup of warm water, to which 1 tablespoon salt has been added, stir in sufficient flour to make a stiff batter, and into this batter stir the yeast. Let stand about eight hours or until it becomes light. This part is called the sponge. Into this sponge knead flour until a stiff dough is made. Let it rise, knead again, and mold. Put into baking pans, let rise, then bake from fifty to sixty minutes. (Fort Apache Indian School, Arizona.)

Q. When should flour for bread be sifted?

A. Flour should be sifted before measuring.

Q. How should butter, lard, and other fats be measured?

A. Solid fats should be packed solidly in the measure and leveled off with a knife.

Q. Why should the hands be carefully washed and the nails cleaned before kneading bread?

A. The hands and nails should be perfectly clean before putting them into the flour to knead bread, because germs from them might get into the dough and perhaps cause the illness of those who eat the bread.

Q. Can good bread be made with water?

A. Good bread can be made with water; milk is not essential.

Q. When milk is used in making bread should it be used warm or cold?

A. When milk is used in making bread it should be scalded to keep it from souring, then cooled off and used lukewarm.

Q. When is the best time to make the sponge?

A. The sponge may be made in the evening and the batter allowed to rise overnight.

Q. In the morning what is added to the sponge?

A. In the morning flour is added, to make a stiff dough.

Q. How long must dough be kneaded?

A. Dough must be kneaded until it is smooth—about fifteen minutes—after this it is set to rise until it doubles its bulk (four or five hours).

Q. Must dough be left in a warm or a cool place to rise?

A. Dough must be left in a warm place to rise.

Q. After dough has risen it is kneaded a few moments, molded into loaves or rolls, and put into well-greased pans; how long should it be kept before baking?

A. The dough must rise again until it doubles its bulk; then it is ready for the oven.

Q. How shall the oven be tested for baking?

A. A moderate oven will turn a piece of writing-paper brown in five minutes, a hot oven in two minutes.

Q. Why is bread baked?

A. Bread is baked:

1. To kill ferment.
2. To make the starch soluble.
3. To drive off alcohol and carbon dioxide.
4. To form brown crust.

Q. How long should rolls or biscuits be baked?

A. Rolls should bake from twenty to thirty minutes in a moderate oven, and biscuits from fifteen to twenty minutes in a hot oven.

Q. How can you tell when loaves of bread are baked?

A. After baking fifty or sixty minutes in a moderate oven pass a clean straw through the loaf, if it comes out dry the loaf is baked.

Q. When bread has been taken out of the oven, how soon must it be taken out of the pans?

A. When bread is baked it must be taken out of the pans at once and allowed to stand, so that the air may circulate around it.

Q. Must bread be wrapped in a cloth?

A. Bread must not be wrapped in a cloth, as it absorbs the moisture and spoils the flavor.

Q. Must bread be put away warm?

A. Bread must always be allowed to get cool before it is put away.

Q. Where must bread be kept?

A. When perfectly cold, bread must be kept in a clean, dry tin box.

Q. How many slices of bread does one child eat for breakfast? For dinner? For tea?

A. —————. (To get the average, question class individually.)

Q. How many slices of bread are cut from a loaf the size of loaves made at this school?

A. \_\_\_\_\_.

Q. How many pupils can be served at breakfast from one loaf?

A. \_\_\_\_\_.

Q. How many loaves of bread will be required at this school for breakfast? For dinner? For supper? (Allowing each pupil three slices.)

A. \_\_\_\_\_.

Q. How much flour should be used to bake 8 loaves of bread the size used at this school? How much to bake 12 loaves? 20 loaves? 45 loaves? 100 loaves? 300 loaves?

A. \_\_\_\_\_.

Q. Flour at this school costs \$— per barrel; what will the bread for one day cost? One week? One month?

A. \_\_\_\_\_.

Q. How many pounds of flour are used per day at this school?

A. \_\_\_\_\_.

Q. What will bread for one pupil cost at this school per day? What per week? What per month?

A. \_\_\_\_\_.

Q. How often should we bake bread?

A. \_\_\_\_\_.

Q. What would bread cost for a family of two people for one week? For one month?

A. \_\_\_\_\_.

Q. What would bread cost for a family of three people for the above-stated periods? For four people? For ten people?

A. \_\_\_\_\_.

#### SALADS.

Pupils must learn the food value of salads and their refreshing qualities and how they supply salts to the system and give variety to the menu. Instruction should include making and serving meat, egg, fish, fruit, and vegetable salads, and should give the reasons for serving green salads after a hearty meal.

#### DESSERTS.

The value of desserts and their relation to food and diet must be made plain to pupils through a series of lessons, also their use and abuse and why pastry is indigestible. Class must be taught to make custards, puddings and sauces, frozen creams and ices, pies, cake, gelatine desserts, and candy. They must also learn the use of fruit, alone and combined with other materials, the cost of desserts and their value as part of a family meal.

## MILK AND BUTTER.

Instruction must bring out something of the food value and composition of milk and its care, including sterilization. Both boys and girls must be given practice in milking and feeding cows, making butter, and caring for the milk and utensils. Butter making must be taught in the class room each year, and as pupils grow stronger they will be expected to do more work. By the fifth year the girls will be old enough to do the churning and should be given full charge of the milk. Each one's care of the utensils and manner of handling the milk should be criticised; their weak points must be noted and definite instruction given to enable them to improve. The different breeds of cows should be brought to the attention of the class and their relative value explained, that pupils may learn how to select varieties giving the greatest quantity and best quality of milk. Instruction must be given in the feeding and care of the animals, careful milking and gentle handling, and the care of calves and of fresh eows. Sanitary surroundings and methods for the extermination of flies, that cows may not be annoyed in their stalls, will be necessary lessons.

The class-room teacher should confer with the teacher of farming and dairying, and the instruction should be practical, that pupils, upon leaving school, may be able to take entire charge of the cows at home and know how to feed them to secure a large quantity of good milk for the use of the family.

## CANNING, PRESERVING, AND PICKLING.

The importance of putting away vegetables and fruits during the summer for use in winter must be emphasized. Pupils must be taught that the object of preserving is to prevent the growth of harmful bacteria. As these require moisture, certain food products are dried. Few kinds of bacteria can grow in vinegar, so vinegar is used for pickling. In preserving, the water is drawn off and dissolved sugar takes its place. In canning, fruits, etc., are sterilized or freed from germ life by boiling. Actual experience in drying and canning vegetables and fruits, also in making pickles, jellies, and preserves, must be given, together with reliable and economical recipes. The kitchen experience will enable pupils to carry out the class-room instruction intelligently and successfully.

## SAMPLE LESSON.

**Q. How are jars sterilized?**

**A.** Wash jars and fill with cold water; place on a rest to prevent the jars from touching the bottom of the boiler; surround the jars with cold water, and heat gradually until the water boils. Keep jars in the

boiling water until ready to fill, then empty and fill. Sterilize the covers of the jars, also dip the rubber bands into hot water, but do not boil them. New rubbers should be used each season.

Q. Give careful directions for canning fruit.

A. Use two cups water, one pound sugar, and three pounds of fruit. Prepare the sirup, boil it ten minutes; pare the fruit (peaches, for example), and drop into hot water. Cut peaches into halves, stone them, and put peaches and a few stones into the sirup. The flavor of peaches is improved by cooking the stones with them. Cook the fruit until when tried with a knitting needle it is found to be soft. Pears, cherries, apples, and plums may be canned like peaches. Hard fruits, like pineapples and quinces, are cooked in boiling water or steamed until nearly tender and then put into sirup to finish cooking.

Q. Give general directions for filling the jars.

A. Remove the jars from the boiling water and in them place the fruit, the rounded side of fruit toward the outside of the jar. Fill with sirup, use blade of knife to push fruit toward the outside of jar to allow air bubbles to rise to the surface and break. Fill jars to overflowing, and if there is not sufficient sirup use boiling water. Place the rubber on the jar, put on the cover and screw it tight, then turn the jar upside down to see if it is air-tight. Tighten the tops of jars before putting them away.

Q. What is the process in making jellies?

A. Wash the fruit and remove the stems and imperfections. Cut large fruit into pieces. With watery fruits, such as grapes and currants, use no water. With apples and quinces use enough water to cover them. Cook fruit until the juice flows, remove from the fire and strain. Measure the juice, boil it twenty minutes, and add an equal quantity of heated sugar, boil five minutes or until jelly stiffens when tried on a plate, skim, turn into sterilized glasses, and set aside to harden. Cover with melted paraffin, or paste paper over the top of the glass, and set in the sunshine for a day or two. Keep jellies in a cool, dry place.

#### RULES FOR SERVING.

Cold food should be served on cold dishes, hot food on hot dishes. When passing a dish, hold it so that the thumb will not rest upon the upper surface. In passing dishes from which a person is to help himself, pass always to the left side, so that food may be taken with the right hand. Set individual dishes, coffee, etc., down carefully from the right side. When the dishes are being served by a person at the table, the waiter should stand at the left, hold the tray low, and near the table. One plate should be placed on the tray at a time and then placed before the person for whom it is intended.

When one course is finished, take the tray in the left hand, stand on the left side of the person, and remove with the right hand the soiled dishes, never piling them on top of each other. Soiled dishes should be first removed, then food, then clean dishes, then crumbs.

Fill the glasses before every course. Never fill glasses and cups more than three-fourths full. Before the dessert is served remove crumbs from the cloth, either with a brush, crumb knife, or napkin. Do not let the table become disorderly during a meal. The hostess should serve the soup, salad, dessert, coffee, and, at a family dinner, the vegetables. The host serves the fish and meat.

Whether waiting or being waited upon, remember that the golden rule is the best rule for table etiquette.

#### DOMESTIC HYGIENE.

The questions and lessons in domestic hygiene should be carefully prepared to bring out all points necessary, and should embrace directions for sweeping, scrubbing, the care of floors and paint, the stove, the sink, and rules for personal hygiene.

#### SAMPLE LESSON.

**Q.** What are some of the aids to cleanliness?

**A.** Sunlight, air, water, soap, sand, soda, ammonia, lye, etc.

**Q.** Why is it important to remove the dust from furniture and corners?

**A.** Because bacteria will grow in accumulations of dust.

**Q.** What is the best way to ventilate a room?

**A.** Every morning there should be a current of air through rooms to ventilate them thoroughly.

**Q.** How would you sweep a room?

**A.** —— ——. (Have pupils give their own ideas on this subject and suggest improved methods.)

**NOTE.**—Teacher should explain that a neat housekeeper never sweeps an uncarpeted floor without a bag on her broom. The bag takes up the dust, which in using the broom alone is scattered and settles on walls and furnishings, so that the rooms are not much cleaner after sweeping than they were before.

**Q.** Of what material should broom bags be made?

**A.** Bags for brooms may be made of heavy muslin or of any washable material.

**Q.** How should the bag be shaped?

**A.** The bag should be cut the shape of the broom and a little larger, that it may easily slip over the broom after it is sewed around sides and bottom. A drawing string should be run around the top to tie the bag securely around the handle of the broom when in use.

**Q.** When not in use, should the bag be left on the broom?

**A.** The bag should be taken off the broom, well shaken in the air, and hung up for future use. These bags should be frequently washed.

Q. How should paint be washed?

A. \_\_\_\_\_.

Q. What care should be given the floors?

A. \_\_\_\_\_.

Q. How should silverware be kept bright?

A. Silverware should be washed by itself in hot suds and wiped very dry.

Q. How often should it be polished?

A. Silverware should be polished at least once a week, using chalk and ammonia. (Many polishes may be purchased which will clean silver well.)

Q. How often should steel knives be cleaned?

A. Steel knives should be cleaned once a day with ashes rubbed on with a bit of raw potato or a large cork.

Q. How should glassware be washed?

A. Glassware should be washed by itself in very hot suds and a little ammonia and wiped very dry.

Q. What care should be taken of drains, sinks, etc.?

A. They should be kept clean, using hot water and sal soda and occasionally copperas (once a week) and scrubbing with lye to keep the ironwork free from grease.

Q. How can grease be kept from accumulating in pipes, etc.?

A. Lye poured down the sink pipe will cut off the grease and hot water will carry it away.

Q. Should coffee grounds, parings of fruits, vegetables, and other scraps be thrown into the sink?

A. Coffee grounds, parings, and similar refuse should never be thrown into the sink.

Q. How can this be avoided?

A. Have a wire strainer or a home-made tin strainer, and into this pour all water from the tea pans, also the water in which vegetables have been washed and cooked.

Q. How can a strainer be made at home?

A. A useful strainer may be made by punching small holes in the bottom of some worn-out tin vessel or tin can.

Q. How often should the strainer be scrubbed?

A. The strainer should be scrubbed with hot water every day and with lye once a week.

Q. Where should garbage be kept?

A. Garbage should be placed in covered tins and kept out of doors.

Q. How should the garbage pail be cleaned?

A. The garbage pail should be emptied every day, if possible, and scrubbed with hot water at least once a week.

Q. Should there be any doubt as to the purity of the water supply, how must the drinking water be treated?

A. Drinking water must be boiled should there be any doubt regarding its purity.

Q. What precautions should be taken where milk is kept in the refrigerator?

A. Milk put into the refrigerator must be kept covered, as milk absorbs odors and tastes of everything near it.

Q. How shall the refrigerator be kept clean?

A. The refrigerator should be wiped out every day with a damp cloth, and once a week everything should be taken out and the interior scrubbed with hot suds.

Q. What is a disinfectant?

A. A disinfectant is anything that will kill germs.

Q. Where do disease germs thrive?

A. Disease germs thrive in dark and damp places and where dust and dirt accumulate.

Q. What do you know of flies and mosquitoes as germ carriers?

A. Flies and mosquitoes carry germs of disease, and windows should be screened to keep them out.

Q. Does sunlight promote cleanliness?

A. Sunlight shows up dust and other accumulations.

Q. Is air an aid to cleanliness?

A. Air removes dust in its draft, also vapors which combine with dust to cover surfaces with unclean coating.

Q. Should cloths used in cleaning be put away damp in closets?

A. Cloths should always be washed out and dried in the sun before putting them away.

Q. What is sal soda?

A. Sal soda is washing soda.

Q. How must sal soda be used in washing water?

A. Sal soda must be dissolved in a little water and a portion of this poured into the washing water as needed.

Q. How often should the kitchen floor be scrubbed?

A. The kitchen floor should be scrubbed once a week.

Q. When the floor is of natural colored boards what must be used in scrubbing it?

A. Scrub natural wood floors with like-warm water, soap, and sand.

Q. When floors are stained, how may grease spots be taken out?

A. Put a little soda on the spots to absorb the grease.

Q. Is an ice box a necessity?

A. An ice box for keeping perishable articles of food is a necessity. Sufficient ice should be used to insure a uniformly cool temperature, but ice should not come in contact with the food.

NOTE.—When ice can not be obtained a cool spring frequently answers the purpose. The plan of hanging buckets in a well, etc., may be adopted.

Q. How may an ice box be made?

A. An inexpensive ice box may be made as follows: Secure two packing boxes, one the size desired, the other sufficiently larger to leave a space when the smaller one is placed in it of about three or four inches under it and around the four sides. Fill this space closely with sawdust or fine charcoal, cover each box, the cover of the larger box fitting over the cover of the inner box. Line the inside of the smaller box with zinc and bore a hole through the bottom of each, through which insert a small lead pipe to carry off the drainage. Strips of tin may be hung over the edges of the inner box, with cleats attached, on which shelves may rest. Bits of charcoal should be kept in the corners of the box.

Q. What care should be taken of the ice box?

A. No food should be kept in the ice box after it spoils, and no hot food should be put into the box. It should be washed with boiling water every day, and once a week everything should be taken out and the interior washed with a sal-soda solution. This should be poured through the drain pipe, which often becomes foul through accumulations of dust, grease, etc., thus endangering health. A brush should be used in this weekly cleaning and every corner and pipe should be scrubbed. The ice box should then be left open to dry thoroughly to prevent its becoming moldy.

Q. How can you tell that canned goods are good?

A. The ends of a can should be level or sunk in. If so, the contents are wholesome; but if the ends are springy or bulge outward look upon it with suspicion. This usually indicates fermented contents. The general rule as to bulged ends does not apply to condensed milk, which is frequently put up in cans having convex ends.

Q. Should the contents of cans be left in the cans after they have been opened?

A. After opening the can pour the contents into a porcelain or glass dish; never leave them in the can, as this often causes sickness, owing to the chemical action of the air upon the tin.

#### SCIENCE WORK.

The final test of the value of any teaching must be the ability of the pupil to accomplish desired results. The instruction in science work should teach pupils practical truths that will make their lives more useful in the community in which they reside. For example, these lessons should teach the relative amount of the various food elements in different articles of food and how properly to combine these in menus, since it is essential for health that the food shall supply the nutrients in the kinds and proportions required by the body, having due regard to the formation of tissue, the production of

animal heat and muscular strength, and the repairing of the wastes of the system.

The following sample lesson (given by Miss Bernette Bachelor, of Hampton Institute) will assist teachers in conducting many similar experiments, and as a result of the inquiry and information developed in these experiments they will be enabled to formulate many science lessons to be used in the higher grades. Science work of this character will be valuable and useful to the pupils and only practical work along the lines suggested should be undertaken.

EXPERIMENTS TO FIND ALBUMEN.

SAMPLE LESSON.

Teacher (after explaining that white of egg is nearly pure albumen) puts a few drops of white of egg in a tablespoonful of cold water in a glass, and, holding up the glass, says:

Q. What do you see?

A. I see white of an egg in water.

Q. Stir thoroughly and tell me what you see? (Passes the glass to each one in the class.)

A. (After stirring thoroughly) I see nothing but water.

Q. What does this show?

A. This shows that the albumen has been dissolved in the cold water. Teacher then says: "I now wish to find if there is any albumen in this water." Takes boiling water from the stove and pours into the glass; stirs and passes to class.

Q. What do you see?

A. I see white, hard partieles

Q. What does this show?

A. This shows that albumen is not soluble in boiling water.

Q. How, then, do you find albumen in any liquid?

A. To find albumen in a liquid pour boiling water in the liquid. Teacher then holds up a piece of raw steak, saying: "We wish to find if there is any albumen in this meat," and cuts steak into small pieces, putting them in half a glass of cold water, then passes the glass to each pupil saying, "stir thoroughly."

Q. (After pupils have thoroughly stirred the water) What color is the water in the glass?

A. The water in the glass is red.

Teacher pours boiling water into the glass and sets it in a saucepan on the stove for a moment, then, holding it up, says:

Q. What do you now see?

A. I see little brown partieles.

Teacher explains that these brown partieles are albumen.

Q. So to find albumen in any food we must do what?

A. To find albumen in any food we must extract the juices, and pour boiling water into them.

Q. What have we learned from these experiments?

A. We have learned that albumen is soluble in cold water and insoluble in hot water.

The following are among the subjects that should be developed in the science instruction: Study of fuels and combustion; experiments in the accumulation of rust; analysis of milk, and its food value; the food value of eggs, as shown by their chemical composition; a study of yeast and baking powders; the composition of wheat and the manufacture of flour, macaroni, etc.; the study of albumen, starch, protein, the carbohydrates, and other nutrients, their functions, and in what articles of food they are found, respectively; a study of edible roots that contain starch, and of the effect of the action of saliva on starch.

NOTE.—Work of the above character can be carried on in the higher classes at Carlisle, Haskell, Chilocco, and other schools giving advanced instruction.

Teachers in the nonreservation schools who have access to libraries will find in Chemistry in Daily Life many chapters, especially those treating of "Quantity of food required," "Saccharine," "Fermentation," and "Proteids," that will be helpful in outlining lessons. In the Handbook of Domestic Science, the chapter entitled "How to turn an ordinary schoolroom into a workshop for the study of the household arts" is full of ideas which teachers can adapt to meet their special needs. In some of the Chicago schools this has been happily carried out by the use of curtains and screens to divide the rooms.

The following books are suggested as helpful: Chemistry in Daily Life, Dr. Lassar Cohn; Domestic Science, L. L. W. Wilson; Text-book of Domestic Economy, F. F. Paul; Elements of the Theory and Practice of Cooking, Williams and Fisher; Food, A. M. Church (Chapman & Hale, London); Food and its Functions, James Knight (Blackie, London); The Home Science Cook Book, M. J. Lincoln, Anna Barrows; A Course in Household Arts, Ellen L. Duff.

#### INVALID COOKERY.

One of woman's most important duties is the care of the sick, and careful instruction in this must form part of the class-room work. Those who have a special gift for nursing should be encouraged to seek thorough training after leaving school, since natural ability and skill in this work not only lead to remunerative occupation, but increase the sphere of usefulness. Every lesson should tend toward showing the pupils how to make the most of the materials at hand. Instruction should include care of patient, the bed and the room, the use of disinfectants, preparing and serving nourishment, and the importance of proper diet, good air, and perfect cleanliness. The necessity for obeying the physician's directions implicitly is one of the

most important lessons for the nurse to learn. Giving medicine should not be intrusted to the care of the pupil nurses until, in the judgment of the instructor, their training and experience justify it. A special collection of recipes for nutritious dishes that may be served to the sick should be kept by every pupil for home use. Teachers will find these in any reliable cook book.

Every boy and girl must receive some instruction in emergency cases. Accidents frequently occur and life often depends upon timely care. A list of remedies to use for burns, scalds, wounds, or cuts, and in cases of drowning, poisoning, croup, sunstroke, convulsions, chil-blains, and frostbites will be useful in every home.

### COOKERY AT DAY SCHOOLS.

The class-room instruction outlined herein is intended for the day schools as well as for the boarding schools. Reading, numbers, language, etc., should be taught through the cooking lessons. Day-school teachers must use as much of this work as they find adapted to their respective localities and as their facilities and the advancement of their pupils will justify.

The ration supplied for day schools provides a substantial and wholesome meal in the middle of the day, and is sufficiently varied, when supplemented by the products of the school garden, to supply the needs of a daily changing bill of fare and to form the basis of instructive cooking lessons. Pupils should be carefully and thoroughly taught how to cook each article of food, not only in the proportions used in the school, but in a way that will enable them on returning to their homes to cook for the household and to teach their parents. They should be taught to make good bread, to make butter, to cook cereals properly, to make tea and coffee, to cook meats, and, in addition, to prepare and cook in various ways the vegetables raised in the school gardens.

The serving of a tasty and nourishing midday meal is an important element in the work of the day schools and must receive careful and deserved attention. Where tables are not available the pupils must have napkins or squares of linen crash or oilcloth to put on the desks while eating, but, wherever possible, tables should be provided. Housekeepers must always be present at meals. The luncheon should include soup, when practicable, and the children must be encouraged to drink milk if it is obtainable in sufficient quantity.

Each child should have a small garden of his own (in addition to the general school garden), where a variety of vegetables may be raised suitable to the locality. These vegetables and those grown in the general school garden must be carefully gathered and stored and used in combination with the ration to vary the daily menu. The pupils will gain practical experience in gardening from raising vegetables, and in preparing them for the table the girls will acquire skill in cooking.

The school must be conducted in the interest and primarily for the benefit of the pupils. The teacher lives in the school building, but that is for convenience and incidental to his position as teacher, not an essential part of it. It is presumed that he has been selected because of peculiar fitness for this work. These schools have been

established for the moral uplift of the community, to teach the children self-support and to make them creators of better conditions in the tribes to which they belong. The influence of the Indian day school is not bounded by the educational or other needs of the pupils in attendance. It must bring all within its radius to a realizing sense of the advantages to be derived from improved methods of living. Its province includes giving advice and information on all subjects and guiding the Indian in the path of usefulness in the community in which he resides.

## **COURSES USED IN CHICAGO, HAMPTON AND NORFOLK COUNTY, VA.**

For the assistance of teachers and to show them how lessons should follow in logical sequence, outlines of cooking courses used in the schools of Chicago and Virginia are appended, these having been selected as types of the instruction in city and rural schools, and as showing the stress laid on training of this character in different sections of the country.

### **FROM COURSE IN COOKING FOR CHICAGO SCHOOLS.**

#### **The kitchen:**

- Arrangement and care.
- Selection, care, and use of utensils.
- Fuel.

#### **The human body:**

- 1. Composition.
- 2. Waste, growth, and repair.
- 3. Digestion.

#### **Food:**

- 1. Service, selection, care.
- 2. Economical uses.
- 3. Composition.
- 4. Classification.
  - A. Combustible:
    - 1. Heat givers (carbonaceous foods).
      - a. Starch.
      - b. Sugar.
      - c. Fats and oils.
    - 2. Flesh formers and heat givers (nitrogenous foods):
      - a. Meat.
      - b. Fish.
      - c. Eggs.
      - d. Milk and cheese.
      - e. Grains.
      - f. Peas and beans, legumens.
  - B. Incombustible:
    - 1. Water—essential to all tissues and fluids.
    - 2. Mineral matter.

#### **Cooking:**

- 1. Principles involved in various methods employed.
- 2. Rules for the combination of ingredients.
- 3. Effect of cooking on the digestibility of food.
- 4. Preparation of cereals, vegetables, soups, meats, bread, beverages, simple salads, and simple desserts.

## Diet:

## 1. Diet in health:

Practice in writing bills of fare that shall be attractive as well as furnish right proportion of different food principles.

## 2. Special diet for the sick.

## House sanitation:

## 1. Situation.

## 2. Care of sinks, pipes, etc.

## 3. Cleaning house.

## 4. Household pests.

## Study of yeast making.

## Table setting and serving.

## Care of linen, china, silver, and brass.

FROM COURSE IN USE AT HAMPTON INSTITUTE, HAMPTON, VA.

## Synopsis of work for fifth year and upward.

NOTE.—Some of the work is a review for those who have had the advantage of instruction in cooking from the primary grades up. All is essential and must be given. All articles used in the lesson must be drawn on the board. Notes must be taken and compositions written giving statements of work and the manner of performing it.

The cost of every dish prepared throughout these lessons must be computed in class. All recipes must be written on the board.

## LESSON I.

Names and uses of kitchen utensils and furniture; care of stoves and full explanation of drafts, etc.; building fires; care of refrigerators; rules for dish washing and washing tea towels; care of kitchen cupboard.

## LESSON II.

Personal hygiene: Care of skin, hair, teeth, nails, and clothing.

Domestic hygiene: (a) Household cleanliness. (b) Valuable aids—ventilation, sunlight, and disinfectants. (c) Beds and bedding, floors, walls, ceiling, closets, traps, and pantries.

Care of brooms and scrub brushes.

Class to be reviewed on previous lessons.

## LESSON III.

Fuels: Kinds, how produced, where found (in the locality), how used, elements, local distribution. Samples of various fuels shown: Vegetable growth—sage brush, trees, straw, etc.; mineral growth—coal, oil, etc.

## LESSON IV.

Cereals: Growth, use, nutrition, geographical distribution, various ways of preparing. Pictures and samples shown. (Class describe growth and appearance.)

Practice in weighing and measuring. Rice boiled, steamed with figs, prunes, and other dried fruits. Small and large hominy boiled and fried.

## LESSON V.

Review of previous lessons.

Eggs: Digestibility, nutritive value, cost at different seasons, ways of preserving; effect of, in raising doughs and batters. Simple experiments with albumen. Give each pupil practice in preparing soft-boiled, hard-boiled, and poached eggs, and omelets.

## LESSON VI.

Sweet potatoes: Boiled, baked, fried, sweet-potato pone, and croquettes. White potatoes: Boiled, baked, fried, and mashed.

## LESSON VII.

Corn meal: Muffins, meal and hominy muffins, batter bread, hoecake, Indian-meal pudding, corn meal, and cheese.

Nutritive value of corn; cost, considered from an economical standpoint, as food; combination with other articles of food; value, as food for stock.

## LESSON VIII.

Milk and butter: Care of milk, butter making, cottage cheese.

Custards and sauces: Rennet custard, boiled custard. Various kinds of sauces—white sauce, Hollandaise sauce; use of milk in sauces. When served. Thickening principles for sauces: Butter and flour, cornstarch, gelatin, eggs.

## LESSON IX.

Roast beef; pork chops fried with apples; sausages with mashed potatoes; broiled steak; fried, paned, and stewed rabbit, and rabbit pie. Food value; digestibility; danger in eating diseased meat; proper care of the meat in the locality; cost.

## LESSON X.

Cleaning: Hard and soft soap. (Give recipes.) Lesson in cleaning. (Class should make list of methods of cleaning, and what to use.) Care of glass, silver, knives, lamps, china, iron, tin, and agate utensils. Taking out fruit, coffee, and tea stains from damask, and grease spots from table and floor. Care of kitchen floor.

## LESSON XI.

Review previous lessons.

Class make drawings of beef and pork (the entire animal) and mark off to show the location of the different cuts. Recipes for boiling, broiling, roasting, frying, and other ways of cooking meats. Methods and recipes for warming over meats—hashed, minced on toast, scalloped, stew, cottage meat pie.

## LESSON XII.

Meat soup, soup stock, black-eyed pea soup, tomato and other soups; seasonings and flavorings of soups; food value.

## LESSON XIII.

The importance of reading household magazines and keeping abreast of the times.

Griddle cakes made with sour milk, pop overs, baking-powder biscuits, and batter bread.

Action of baking powder, cream of tartar, soda and sour milk, and soda and molasses on batter and dough.

## LESSON XIV.

Uses of stale bread: Crumbs for frying; bread pudding.

Toast: Milk, water, and dry.

## LESSON XV.

Bread: Grains adapted to bread and those not adapted; different methods of making bread; Indian ways; nutritive value of bread. Yeast making. Various methods of raising bread: Yeast, salt, and carbonic acid gas.

Flour milling. History and effect of climatic conditions on the wheat grain.

## LESSON XVI.

Vegetables: Growth and geographical distribution (class prepare list of vegetables grown in locality, considered from an economical standpoint); nutritive value; time-table for cooking. Compositions on roots, leaves, etc. (Pictures of vegetables put in scrapbook by class.) Sauces suitable for vegetables. List of vegetables served with different kinds of meat, and

why. Practical cooking—turnip tops, spinach, black-eyed peas, cabbage, eggplant, onions, tomatoes, cymlings, peppers, cucumbers, and okra.

#### LESSON XVII.

Fish: Nutritive value; preserving; various ways of cooking and warming over—boiled fish, egg sauce; fried fish; codfish balls; oysters, stewed, fried, and scalloped. Composition on the fish of the locality.

#### LESSON XVIII.

Ham: Boiled, broiled, fried, and baked; ham and potato pie.

#### LESSON XIX.

Table setting; carving and serving.

#### LESSON XX.

Beverages and simple desserts: Coffee, tea, chocolate; rice pudding, baked apples, apple pie. Talks on nutritive value of coffee, tea, cocoa, and chocolate.

Herbs and spices: Value as food; uses; geographical distribution.

#### LESSON XXI.

Class will submit menus.

Class will prepare for and plan simple meals.

#### LESSON XXII.

Roasting chicken, duck, turkey, or goose.

Give talk on marketing, with special reference to the locality.

### A COURSE OF TWENTY-TWO LESSONS FOR A RURAL SCHOOL.

ELLEN TAYLOR, Directress, Southern Industrial Classes, Norfolk, Va.

**NOTE.**—Miss Taylor's outlines are full of suggestions which teachers in Indian schools may adapt to their respective needs, substituting for the figures given the prices current in the locality. To illustrate: Lesson I may be used for eight or ten lessons. Boiled potatoes may be given by the teacher for one lesson and at the next the pupils will boil the potatoes unaided. The next lesson may be mashed potatoes, which will review the lessons on boiling. Give this again in review to fix it thoroughly in their minds. Then stewed potatoes may be taught in two lessons, while for frying an indefinite number of lessons may be presented.

*Lesson I.*—White potatoes: Boiled, mashed, stewed, fried. Average cost: Potatoes, 10 cents; milk, 4 cents; butter, 5 cents; lard, 5 cents. Total, 24 cents.

*Lesson II.*—Eggs: Boiled, poached, scrambled, plain omelet. Average cost: Eggs, 15 cents; milk, 4 cents; butter, 5 cents; salt and pepper, 1 cent. Total, 25 cents.

*Lesson III.*—Cereals: Hominy, boiled, fried; rice, boiled. Average cost: Hominy, 5 cents; rice, 8 cents; lard, 5 cents; milk, 4 cents. Total, 22 cents.

*Lesson IV.*—Pork chops and fried apples. Average cost: Pork, 15 cents; apples, 5 cents. Total, 20 cents.

*Lesson V.*—Rabbit, stewed and fried. Average cost: Rabbit, 10 cents; salt pork, 5 cents; lard, 5 cents; flour, 6 cents; red peppers, 2 cents. Total, 28 cents.

*Lesson VI.*—Ham, boiled, fried, ham omelet. Average cost: Ham, 20 cents; eggs, 2 cents. Total, 22 cents.

*Lesson VII.*—Pigs' feet and cabbage salad. Average cost: Pigs' feet, 5 cents; vinegar, 5 cents; cabbage, 5 cents; butter, 5 cents; eggs, 2 cents; mustard, 5 cents. Total, 27 cents.

*Lesson VIII.*—Soup, vegetable, potato, black-eyed pea. Average cost: Beef bone, 5 cents; salt pork, 5 cents; peas, 5 cents; potatoes, 3 cents; milk, 4 cents; butter, 5 cents; vegetables, 5 cents. Total, 33 cents.

*Lesson IX.*—Vegetables: Cabbage, boiled, greens. Average cost: Vegetables, 10 cents; salt pork, 5 cents. Total, 15 cents.

*Lesson X.*—Black-eyed peas, parsnips, boiled and stewed. Average cost: Peas, 5 cents; parsnips, 5 cents; salt pork, 5 cents; onion, 2 cents. Total, 17 cents.

*Lesson XI.*—Sweet potatoes, boiled, fried, sweet potato fritters. Average cost: Sweet potatoes, 5 cents; lard, 5 cents; sugar, 3 cents; eggs, 2 cents; nutmeg, 2 cents; lemon, 2 cents; milk, 4 cents. Total, 23 cents.

*Lesson XII.*—Fried chicken, cream gravy, griddle cakes. Average cost: Chicken, 25 cents; lard, 5 cents; eggs, 2 cents; milk, 4 cents; salt pork, 5 cents; soda, 5 cents; flour, 2 cents. Total, 48 cents.

*Lesson XIV.*—Boiled custard, tea, chocolate. Average cost: Milk, 4 cents; eggs, 6 cents; tea, 5 cents; chocolate, 10 cents. Total, 25 cents.

*Lesson XV.*—Yeast, tomato chowder. Average cost: Potatoes, 3 cents; tomatoes, 10 cents; salt pork, 5 cents; onion, 2 cents; rice, 4 cents. Total, 24 cents.

*Lesson XVI.*—Clam chowder, okra. Average cost: Clams, 10 cents; bacon, 3 cents; veal, 3 cents; tomatoes, 3 cents; potatoes, 3 cents; crackers, 3 cents; parsley, 2 cents; majoram, 2 cents; okra, 5 cents; butter, 5 cents. Total, 41 cents.

*Lesson XVII.*—Apple dumplings, lemon pudding. Average cost: Apples, 5 cents; eggs, 4 cents; lemon, 2 cents; butter, 5 cents; flour, 12 cents. Total, 28 cents.

*Lesson XVIII.*—Codfish cakes, cracker gruel. Average cost: Codfish, 10 cents; potatoes, 2 cents; butter, 5 cents; eggs, 2 cents; crackers, 2 cents; milk, 2 cents. Total, 23 cents.

#### INVALID COOKING.

*Lesson XIX.*—Flour gruel, corn-meal gruel, lemonade, flaxseed lemonade. Average cost: Lemons, 4 cents; flaxseed, 5 cents; corn meal, 2 cents; milk, 4 cents. Total, 15 cents.

*Lesson XX.*—Beef tea, beef pulp, scrapped beef sandwiches. Average cost: Beef, 24 cents; bread, 4 cents. Total, 28 cents.

*Lesson XXI.*—Chicken broth, oyster or clam broth. Average cost: Oysters, chicken, or clams, 13 cents; bread, 5 cents; milk, 4 cents; butter, 5 cents. Total, 27 cents.

Total amount for the course, \$5.73.

\*

#### CONCLUSION.

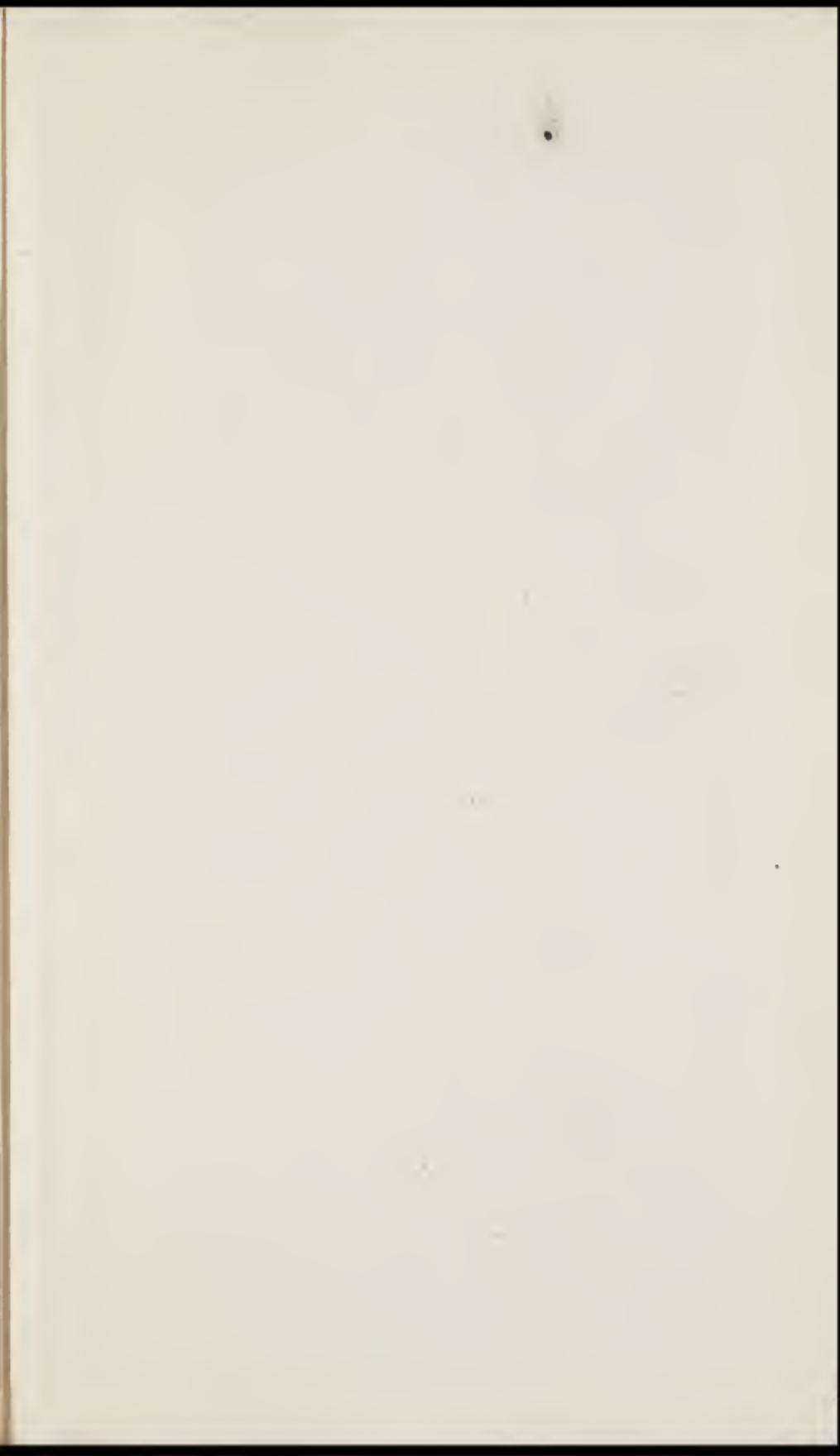
Pupils who have completed the entire course herein outlined and are desirous of gaining further knowledge of this most useful art and desirable accomplishment should enter a class in domestic science, where they can receive thorough instruction in all branches of the art.

Teachers will be expected to follow the outlines of work as closely as possible, elaborating upon each subject, using the hints given as suggestions from which they will formulate a great many other lessons suited to the age and advancement of their respective classes. Bulletins are issued from time to time by the Agricultural Department, giving valuable information on the subjects of cooking, food values, etc. These will be of great assistance to the class-room teacher and may be obtained by application to the Department of Agriculture, Washington, D. C. The lessons must be adapted to meet the local conditions, making them at first simple and gradually leading up to a variety of ways of cooking one dish, then a number of dishes, then to preparing full meals—breakfasts, dinners, and luncheons—that the whole work of the household may be learned.

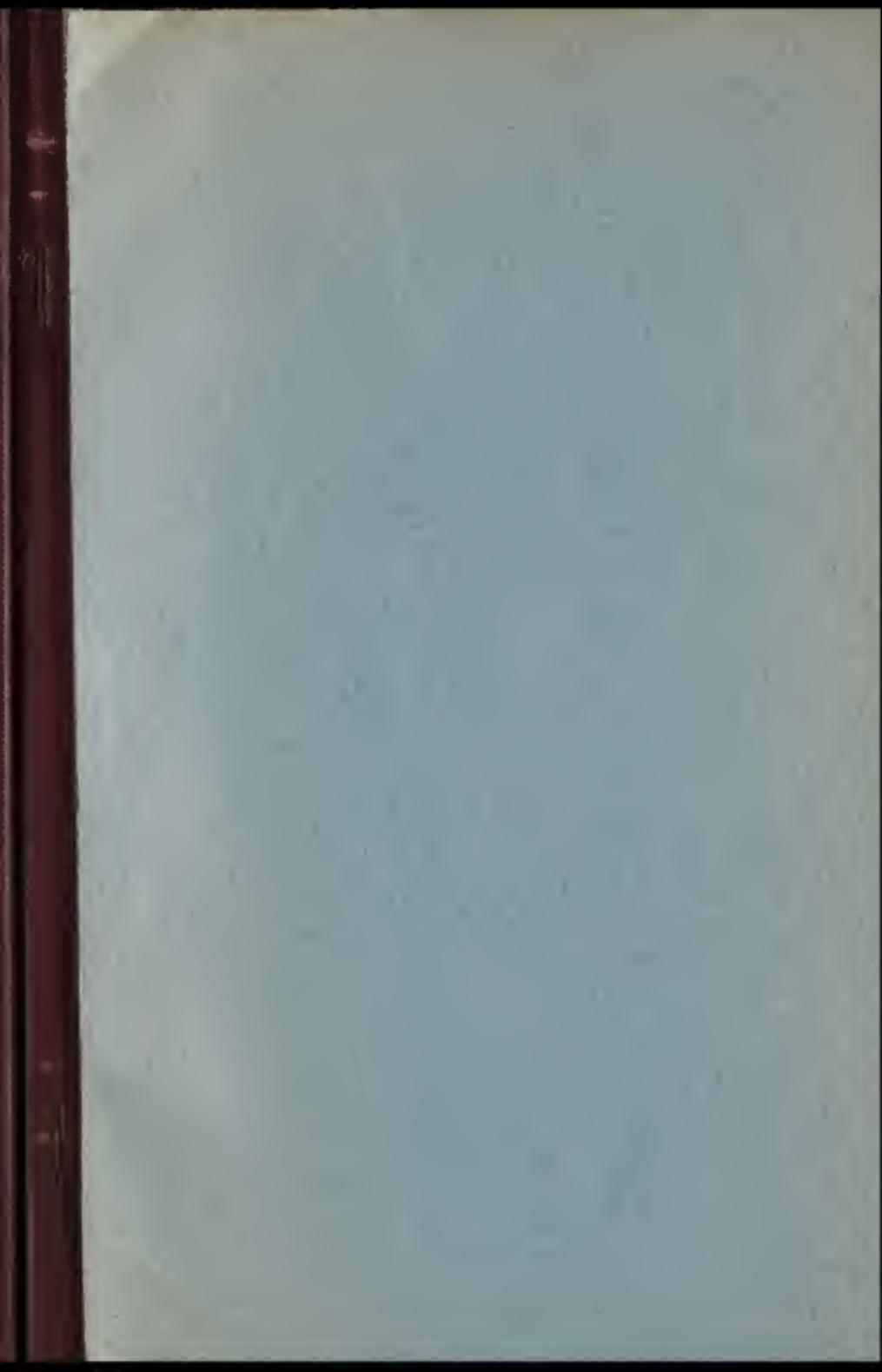
In the preparation of these lessons ideas and suggestions have been obtained from the following sources, for which due acknowledgment is made: The Hampton Normal and Agricultural Institute, Hampton, Va.; the Southern Industrial Classes, Norfolk, Va.; the courses of instruction in cooking in the public schools of New York, Detroit, St. Louis, Chicago, and San Francisco; and the publications of the Department of Agriculture, Washington, D. C.

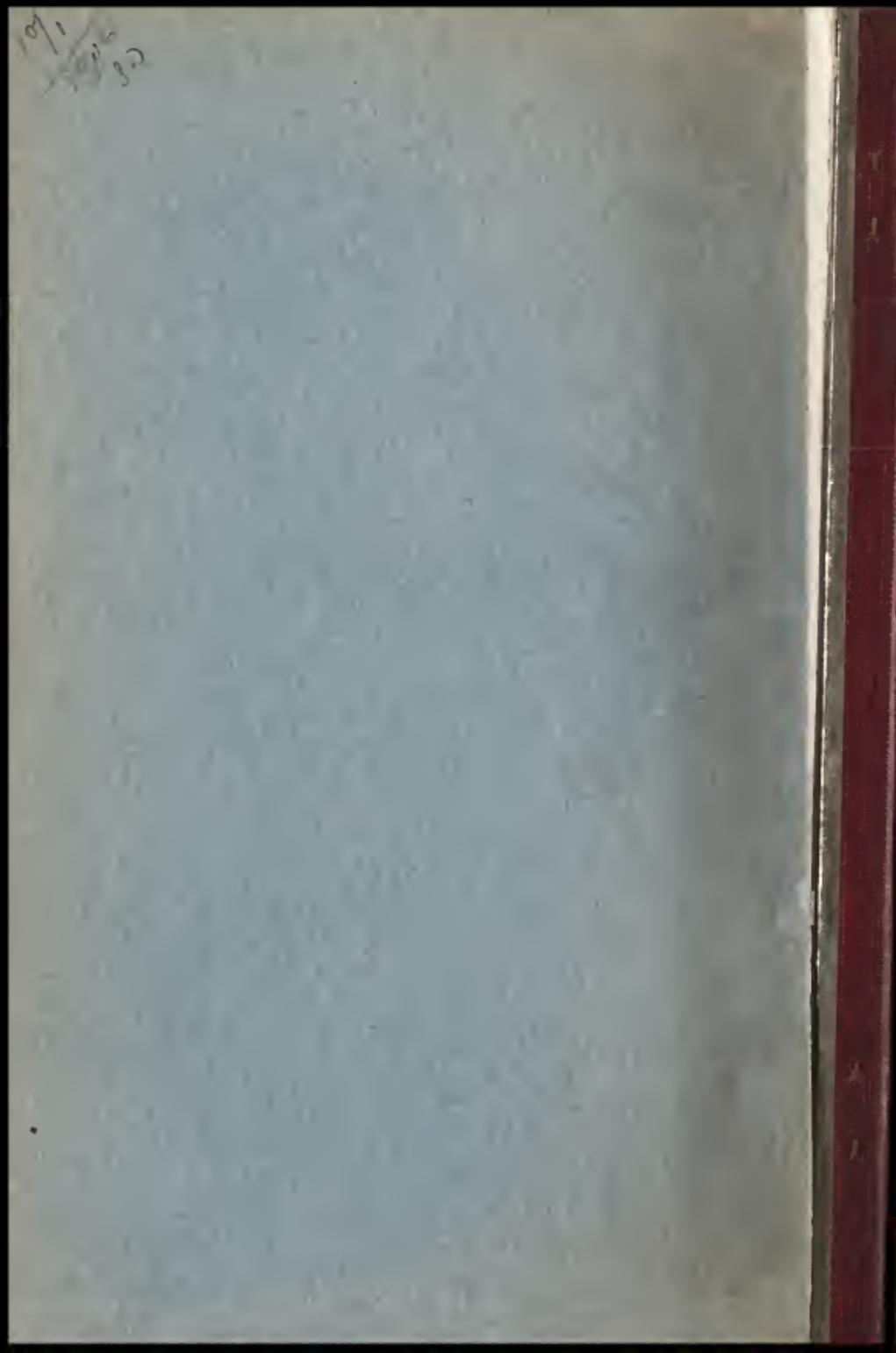
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